Ghost River

Sub-Regional Integrated Resource Plan

Alberta
FORESTRY, LANDS
AND WILDLIFE

GHOST RIVER
SUB-REGIONAL
INTEGRATED RESOURCE PLAN

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PREFACE

This planning document was prepared by government agencies and public consultants in recognition of the need for improved management of Alberta's lands and resources. It applies only to public lands within the Ghost River Planning Area, not to private or federal lands.

The plan presents the Government of Alberta's resource management policy for public lands and resources within the area. It is intended to be a guide for resource managers, industry and the public with responsibility or interests in the area, rather than a regulatory mechanism. Resource potentials and opportunities for development are identified with a view to assisting in the economic progress of Alberta. The plan is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected. Energy resource decisions are subject to the application of legal and approved regulatory processes under the jurisdiction of the Minister of Energy. This plan may influence regulatory decisions, but will not result in the categorical approval or rejection of energy proposals. The provincial government is committed to serving Albertans; should a proposal not be in keeping with the provisions of the plan, staff will work with the proponent to explore alternative means for accommodating the proposal in a more appropriate location, either in this planning area or on other public lands. The rejection of any proposal will be done only in writing by the minister or his designate.

A detailed outline for implementation will be provided for this sub-regional plan in order to identify the necessary implementation actions and roles. This implementation outline will also provide for the continuing review of the plan so that it may accommodate changing needs and situations. Wherever possible, the private sector will be provided the opportunity to be actively involved in the operational delivery of the plan.

Implementation is subject to the normal budgetary approval process. In establishing overall priorities, opportunities in other planning areas and areas currently outside the planning process will be considered.

While the plan identifies resource potentials and opportunities, the realization of these may require the dedication of major amounts of public funds. The plan will be used on the understanding that any actions required for implementation will only be undertaken as budgetary approvals are given in the normal way. The private sector will be given the first opportunity to provide any development required.

This plan has no legal status and is subject to revisions or review at the discretion of the Minister of Forestry, Lands and Wildlife.

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1. INTRODUCTION

1.1 The Planning Area

The Ghost River Planning Area (Figure 1) is located 50 km northwest of Calgary. The area encompasses approximately 2900 km^2 (1120 sq. mi.) and includes most of the Ghost River drainage basin and Burnt Timber and Fallentimber creeks, which are part of the Red Deer River drainage basin.

The boundaries of the planning area are as follows:

> NORTH - northern divide of the Burnt Timber/Fallentimber Watershed Basin, and the boundary between Townships 30 and 31, Range 5 (W5M).
>
> SOUTH - Bow Corridor and the northern boundary of the Forest Reserve south of the Stoney Indian Reserve.
>
> EAST - boundary between Ranges 4 and 5, W5M, north of the Stoney Indian Reserve and the I.D. 8 boundary south of the Stoney Indian Reserve.
>
> WEST - Banff National Park.

The planning area contains the settlements of Benchlands, Big Prairie, Waiparous Creek and Water Valley.

The eastern and southeastern portions of the area are used mainly for ranching. Grazing and timber production occur on much of the public land. The entire planning area is also used extensively for a variety of outdoor recreation activities, mainly by people from Cochrane and Calgary. Stoney Indian Reserves 142, 143 and 144 are located along the southern boundary of the Ghost River Planning Area and reserve 142 B is located entirely within the southeastern portion of the area.

Access to the planning area is provided by Highway 1, Highway 1A, Secondary Road 940 (Forestry Trunk Road) and other secondary roads.

1.2 Policy and Planning Context

A Policy for Resource Management of the Eastern Slopes Revised 1984 (Alberta 1984) states that integrated resource planning, conducted under a comprehensive interagency approach, is the key to effective management of Alberta's resources in the Eastern Slopes. The policy also explains that integrated resource plans implement its regional land use zoning priorities and guidelines. The Eastern Slopes Policy articulates further that integrated resource plans will allocate land uses for specific portions of a planning area, and identifies the need for possible changes in policy zone boundaries.

Integrated resource plans have been completed or are under preparation for selected areas of the Eastern Slopes Policy region. In March 1978, the Alberta Energy and Natural Resources/Recreation and Parks Interdepartmental Assistant Deputy Ministers Committee identified the Ghost River area (Figure 1) as a priority for the development of an integrated resource plan. The Ghost River Sub-Regional Integrated Resource Plan will serve to effectively mitigate conflicts between resource use objectives by determining resource priorities and allocating land uses for specific portions of the Ghost River Planning Area.

The Ghost River planning team consists of representatives from the Alberta Forest Service, Public Lands and Fish and Wildlife divisions of the Department of Forestry, Lands and Wildlife, and the Mineral Resources Division of the Department of Energy.

Consultative team members were identified and given the opportunity to present agency concerns and opinions at key stages of the planning process. They include agencies within the Alberta government, federal government and local authorities:

- Alberta government: Alberta Environment, Alberta Recreation and Parks, Alberta Transportation and Utilities, Alberta Culture and Multiculturalism, Alberta Tourism and Alberta Agriculture;

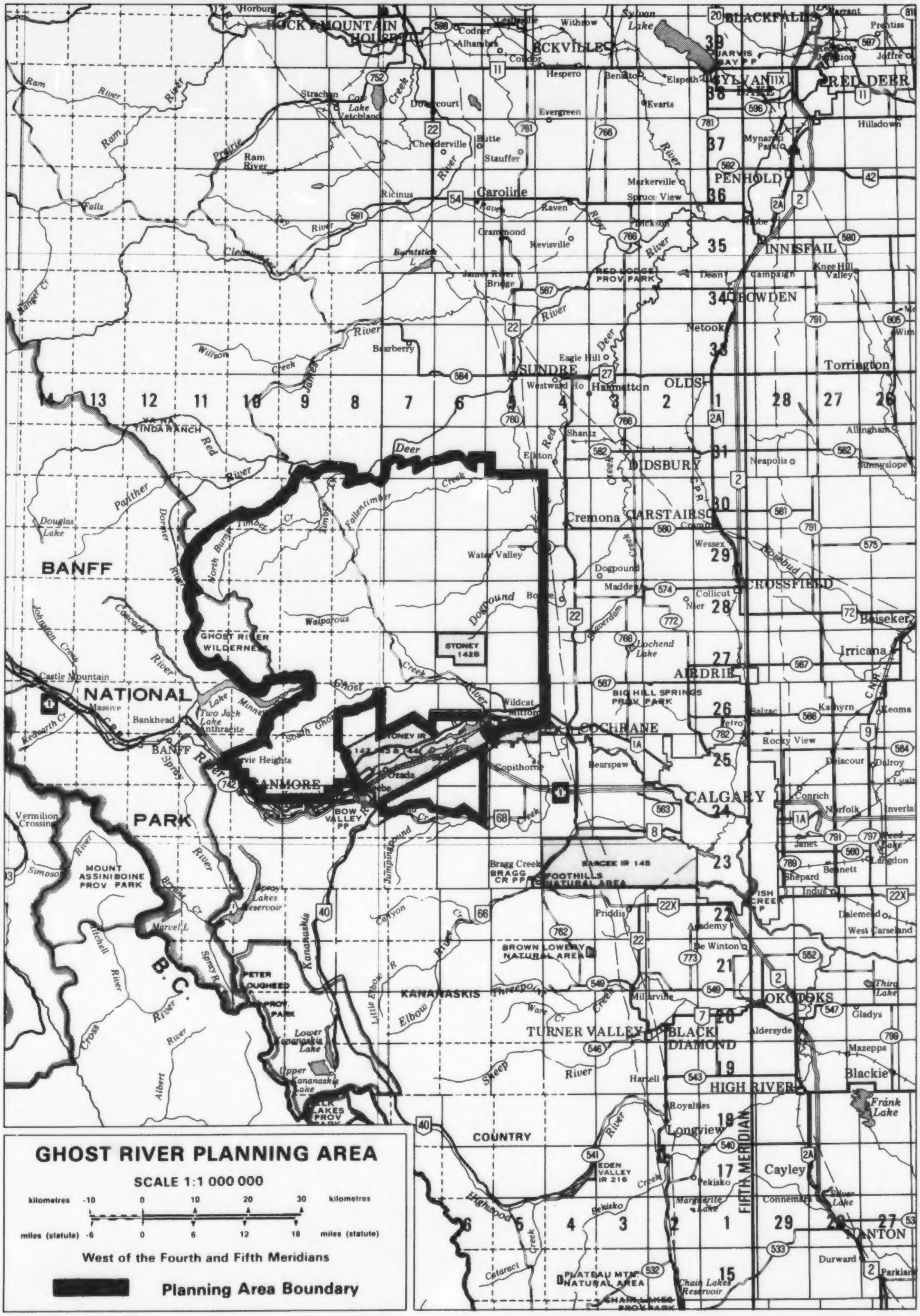
GHOST RIVER PLANNING AREA
SCALE 1:1 000 000
kilometres -10 0 10 20 30 kilometres
miles (statute) -6 0 6 12 18 miles (statute)
West of the Fourth and Fifth Meridians
Planning Area Boundary
BANFF
NATIONAL
PARK
GHOST RIVER WILDERNESS
CANMORE
COCHRANE
CALGARY
AIRDRIE
CROSSFIELD
CARSTAIRS
DIDSBURY
OLDS
SUNDRE
INNISFAIL
BOWDEN
PENHOLD
RED DEER
SYLVAN LAKE
BLACKFALDS
ROCKY MOUNTAIN HOUSE
ECKVILLE
Caroline
Cremona
Water Valley
STONEY 142B
STONEY IR 142, 143 & 144
SARCEE IR 145
Bragg Creek
FOOTHILLS NATURAL AREA
BROWN LOWERY NATURAL AREA
KANANASKIS
COUNTRY
TURNER VALLEY
BLACK DIAMOND
OKOTOKS
HIGH RIVER
Longview
Cayley
NANTON
PETER LOUGHEED PROV. PARK
MOUNT ASSINIBOINE PROV PARK
B. C.
FIFTH MERIDIAN
EDEN VALLEY IR 216
PLATEAU MTN NATURAL AREA
BOW VALLEY PP
BIG HILL SPRINGS PROV PARK
RED LODGE PROV PARK
YA HA TINDA RANCH
Ghost
Red Deer River
Bow River
14 13 12 11 10 9 8 7 6 5 4 3 2 1 28 27 26

Fig. 1 REGIONAL LOCATION

- federal government: Canadian Parks Service; and
- local authorities and MLAs: MLA Banff/Cochrane, MLA Olds/Didsbury, M.D. 8, I.D. 8, M.D. 44, County 17, Red Deer Regional Planning Commission and Calgary Regional Planning Commission.

Throughout development of the plan, public interest groups and associations, industries and individuals have been invited to participate in the planning process. Participation involved submitting letters, briefs and information, reviewing plan documents and attending public meetings.

The final plan will apply only to land and resources vested in the Crown, in both the Green and White Areas. Patent land and private development on public land within the boundaries of the Calgary and Red Deer Regional Planning Commissions remain under the planning control of local municipalities and the planning commissions. In connection with these lands, the integrated resource plan reflects the philosophies of land management of the local authorities. The Alberta government will continue to make every effort to strengthen the existing co-ordination and co-operation with local planning authorities.

A Policy for Resource Management of the Eastern Slopes Revised 1984 (Alberta 1984) provides guidelines and objectives for integrated resource management and planning for the entire Eastern Slopes region including the Ghost River Planning Area. The Eastern Slopes Policy relies on regional land use zoning to designate large areas of land for varying degrees of protection, resource management and development. Table 1 lists the general intent for each of the following eight land use zones:

1) Prime Protection;

2) Critical Wildlife;

3) Special Use;

4) General Recreation;

5) Multiple Use;

6) Agriculture;

7) Industrial; and

8) Facility.

The overriding principle for all the zones is to protect the valuable water resources of the Eastern Slopes and to provide for public land and resource utilization in a manner consistent with principles of conservation and environmental protection. The zoning does not apply to privately owned lands in the planning area. Table 2 defines a range of compatible activities to enact the intent of the eight land use zones. The compatible activities table and regional zoning provide interim direction until sub-regional integrated resource plans are completed.

The Ghost River Sub-Regional Integrated Resource Plan supersedes the zoning configuration in the Eastern Slopes Policy. As a result, the zones have been refined and the regional zoning found in the Eastern Slopes Policy no longer applies in the planning area. Figure 2 shows the revised zoning. It also shows Resource Management Areas (RMAs) which are geographic units that have common resource management intents.

For a discussion of legislation and other associated direction directly related to this plan, refer to APPENDIX A (p. 70).

Table 1

INTENTS OF THE EASTERN SLOPES POLICY ZONES

#	ZONE	INTENT OF THE ZONE
1	Prime Protection	To preserve environmentally sensitive terrain and valuable ecological and aesthetic resources.
2	Critical Wildlife	To protect ranges or terrestrial and aquatic habitat that are crucial to the maintenance of specific fish and wildlife populations.
3	Special Use	To recognize historical resources, lands set aside for scientific research and any lands which are required to meet unique management requirements or legislative status, which can not be accommodated within any of the other zones.
4	General Recreation	To retain a variety of natural environments within which a wide range of outdoor recreational opportunities may be provided.
5	Multiple Use	To provide for the management and development of the full range of available resources, while meeting the objectives for watershed management and environmental protection in the long term.
6*	Agriculture	To recognize those lands within the Eastern Slopes which are presently utilized or are considered suitable for cultivation and/or improved grazing.
7	Industrial	To recognize existing or approved industrial operations such as coal mines, gas processing plants, cement plants and large forest product mills.
8*	Facility	To recognize existing or potential settlement and commercial development areas.

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* Not applied in the Ghost River Sub-Regional Integrated Resource Plan.

TABLE 2. COMPATIBLE ACTIVITIES BY LAND USE ZONE

ZONE	1	2	3	4	5	6	7	8
ACTIVITY	PRIME PROTECTION	CRITICAL WILDLIFE	SPECIAL USE	GENERAL RECREATION	MULTIPLE USE	AGRICULTURE	INDUSTRIAL	FACILITY
Non-motorized recreation	■	■	▨	■	■	■	▨	■
Fishing	■	■	▨	■	■	■	▨	■
Hunting	■	■	▨	▨	■	■	▨	□
Scientific study	■	▨	▨	▨	■	■	■	■
Trapping	■	▨	▨	▨	■	■	□	□
Trails, non-motorized	▨	▨	▨	■	■	■	▨	■
Transportation & utility corridors	▨	▨	▨	▨	■	■	■	■
Primitive camping	▨	▨	▨	■	■	■	□	□
Intensive recreation	▨	□	▨	■	■	▨	▨	■
Off-highway vehicle activity	□	▨	▨	▨	■	■	■	■
Logging	□	▨	▨	▨	■	■	■	▨
Domestic grazing	□	▨	▨	▨	■	■	□	▨
Petroleum and natural gas exploration & development	□	▨	▨	▨	■	■	■	▨
Coal exploration	□	▨	▨	▨	■	■	■	□
Coal development	□	▨	▨	▨	■	■	■	□
Mineral exploration & development	□	▨	▨	▨	■	■	■	□
Serviced camping	□	▨	▨	■	■	▨	▨	■
Commercial development	□	□	▨	▨	▨	▨	▨	■
Industrial development	□	□	▨	□	■	▨	■	▨
Residential subdivisions	□	□	▨	▨	▨	■	▨	■
Cultivation	□	□	▨	□	▨	■	▨	▨

■ Compatible Use — Uses that are considered to be compatible with the intent of a land use zone under normal guidelines and land use regulations.

▨ Permitted Use — Uses that may be compatible with the intent of a land use zone under certain circumstances and under special conditions and controls where necessary.

□ Not Permitted Use — Uses that are not compatible with the intent or capabilities of a land use zone.

These activities are only representative of the range of activities that occur in the Eastern Slopes. For these and any other activities, the possibility of whether they should or should not take place in a particular area must always be measured against the fundamental management intentions for that zone. Since economic opportunities are not all known in advance, site-specific developments may be considered in any zone.

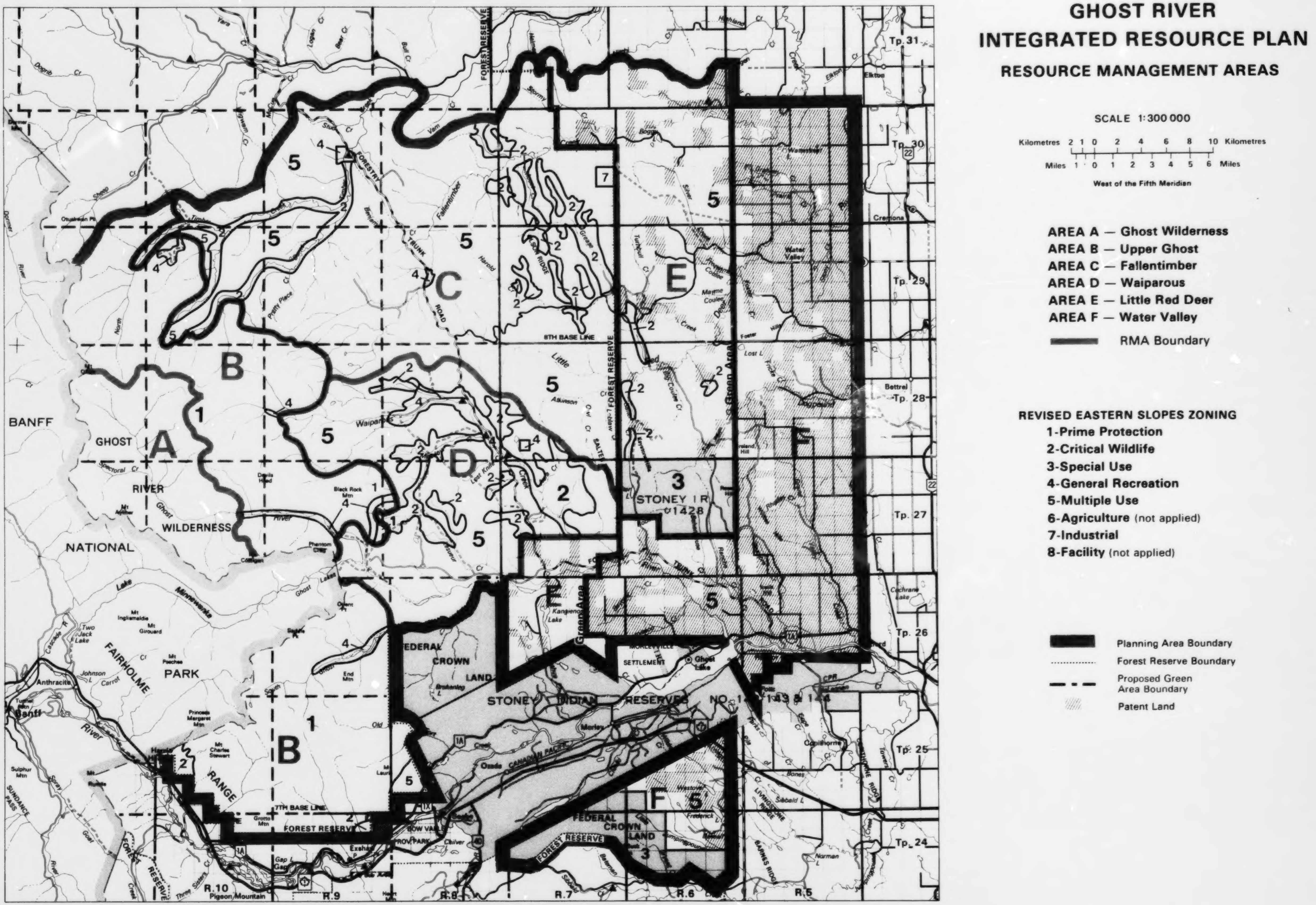

GHOST RIVER
INTEGRATED RESOURCE PLAN
RESOURCE MANAGEMENT AREAS
SCALE 1:300 000
Kilometres 2 1 0 2 4 6 8 10 Kilometres
Miles 1 0 1 2 3 4 5 6 Miles
West of the Fifth Meridian
AREA A — Ghost Wilderness
AREA B — Upper Ghost
AREA C — Fallentimber
AREA D — Waiparous
AREA E — Little Red Deer
AREA F — Water Valley
RMA Boundary
REVISED EASTERN SLOPES ZONING
1-Prime Protection
2-Critical Wildlife
3-Special Use
4-General Recreation
5-Multiple Use
6-Agriculture (not applied)
7-Industrial
8-Facility (not applied)
Planning Area Boundary
Forest Reserve Boundary
Proposed Green Area Boundary
Patent Land
BANFF
NATIONAL
PARK
GHOST
RIVER
WILDERNESS
FAIRHOLME
RANGE
STONEY I.R. 142B
STONEY INDIAN RESERVES NO. 142, 143 & 144
FEDERAL CROWN LAND
MORLEYVILLE SETTLEMENT
8TH BASE LINE
7TH BASE LINE
FOREST RESERVE
Tp. 31
Tp. 30
Tp. 29
Tp. 28
Tp. 27
Tp. 26
Tp. 25
Tp. 24
R.10
R.9
R.8
R.7
R.6
R.5

Fig.2 Refined Eastern Slopes Zoning and Resource Management Areas

2. BROAD RESOURCE MANAGEMENT OBJECTIVES AND GUIDELINES

This chapter consists of a statement of intent for resource management within the planning area plus a set of broad resource objectives and guidelines that apply to the entire planning area. A resource summary is also provided for each sector.

The primary intent for resource management within the Ghost River Planning Area is as follows:

> To allow for the development and use of the full range of available resources while minimizing adverse environmental impacts on watershed and renewable resources.

The Ghost River plan was developed within the scope of the broad resource objectives identified at the plan policy stage of the planning process by participating agencies. These broad objectives provide future standards which participating agencies will strive to attain. They reflect government priorities for the Ghost River sub-region within the context of the Eastern Slopes region, and are expressed as they relate to a particular resource. Following the broad objectives for each resource are the common resource management guidelines.

2.1 Watershed

The Ghost River Planning Area includes a portion of the headwaters of the Bow and Red Deer rivers that eventually flow into the South Saskatchewan River. The water supplied by the Bow and Red Deer rivers is used downstream for irrigation, hydro-electric generation, and industrial and municipal purposes in south and south-central Alberta. The major drainages in the planning area include Fallentimber and Burnt Timber creeks and the Little Red Deer River of the Red Deer River drainage basin, and Waiparous Creek and the Ghost and Bow rivers of the Bow River drainage basin. These drainages are locally important for their fisheries, wildlife and recreation values.

The lower elevations (900 to 1200 m or 3000 to 3900 ft. asl) of the eastern portion of the planning area are mainly composed of Aspen Parkland with mixed lodgepole/aspen forests in northern areas. Intermediate elevations are dominated by the Montane Ecoregion to the south and the Subalpine Ecoregion through the remainder of the area. Lodgepole pine, Douglas fir and grasslands dominate the Montane Ecoregion. Engelmann spruce occurs at the higher elevations of the mountains in the western portion of the planning area dominated by Subalpine forests, and the Alpine Ecoregion occurs above tree line (approximately 2100 m or 7000 ft. asl). The Alpine Ecoregion is mainly composed of rock, alpine meadows, sedges, shrubs and herbs.

The topography of the planning area is mountainous to the west, giving way to foothills east of the McConnell Thrust Fault and changing to gently rolling topography in the eastern portions. The majority of the surficial deposits in the planning area consist of glacial deposits with areas in the northwest unglaciated. Terrain sensitivity varies throughout the planning area. Stream channels are well armoured with rock material in the western portions of the planning area. Also in these portions, soils are less developed and slopes are steeper with the result that disturbances become more difficult to reclaim. Although soils are more developed in the east, disturbance can cause erosion on some slopes. Precipitation throughout the planning area is high, generally increasing in the west at higher elevations. Fifty to 60 per cent of the annual precipitation occurs as snow. In addition, streamflow peaks in spring as the result of snowmelt.

Current uses of public land in the planning area do not seriously affect water quality or quantity in the Bow or Red Deer drainage systems. However, local impacts (e.g., industrial, agricultural and recreational) have influenced and continue to influence stream conditions in the planning area.

Objectives

1. To maintain an optimum water yield of streams in the planning area to satisfy both increasing downstream and on-site demands.

2. To prevent vegetation changes that could cause extreme fluctuations in streamflow,

resulting in erosion of channel materials, high sediment loads, property damage or water supply problems.

3. To maintain, and where possible improve, the water quality of streams and lakes.
4. To prevent or minimize soil erosion associated with land use activities.
5. To proceed with proposed reclamation projects on vacant public land where unacceptable environmental conditions exist.
6. To ensure that reclamation guidelines and standards are adhered to on surface and subsurface dispositions and on land disturbances from natural and man-made causes.

Guidelines

1. Alberta Environment and the Alberta Forest Service will monitor water yield and quality in the planning area to ensure the maintenance of a high-quality water resource.
2. The Ghost River Planning Area will be included in a watershed management plan prepared for the Bow/Crow Forest by the Alberta Forest Service.
3. Land or resource uses that may alter water quality, quantity and flow regime of surface water and groundwater should be brought to the attention of Alberta Forestry, Lands and Wildlife, and Alberta Environment so that adverse impacts on the water resource can be assessed and co-operatively minimized as required.
4. Fluctuations in water yield and streamflow will be minimized by adhering to operating ground rules for timber harvesting and existing forest protection policies.
5. The frequency of stream crossings will be minimized to lessen point sources of sedimentation.
6. Soil erosion associated with land use activities will be addressed through ground rules established for individual developments and the internal referral systems of the provincial government.
7. Reclamation projects will be initiated and completed based on provincial reclamation policies, approval of an access management plan and availability of funds where the responsibility rests with the provincial government.
8. Reclamation of land use disturbances will proceed progressively to reduce erosion and sedimentation. Reclamation will be included as a condition of surface disposition approvals and completed according to provincial standards.

2.2 Wildlife

The planning area has the capability to support a wide variety of wildlife species including a number of big game species, upland game bird species and furbearers generally sought for consumptive use. The capability of the area to support big game species depends greatly on the availability of certain factors, such as protective cover near available food sources. Mule deer are currently the most extensively distributed big game species in the area. Significant numbers of moose, bighorn sheep and grizzly bear also inhabit the area. Moose use shrublands located on the floodplains of major creeks and bighorn sheep populations are present in the mountainous areas. The capability of the area to support grizzly bear populations depends on the availability of undisturbed feeding areas and territories. Other big game species present include elk, white-tailed deer, black bear, cougar, wolf and mountain goat.

The area has the capability to support productive populations of furbearing animals such as red squirrel, marten, lynx, coyote and beaver. The areas which have the best capabilities for many of these species change with forest succession and the availability of prey and riparian habitat.

The area also has the capability to support upland bird species such as ruffed grouse and spruce grouse. The areas which have the best capabilities for supporting these species change with forest succession and are largely dependent on forest management.

Present use of these wildlife species is both non-consumptive (e.g., viewing) and consumptive (e.g., hunting and trapping). Commercial use varies from the sale of fur to outfitting service for hunters. There are eight traplines in the area. The average annual revenue from 1974-79 was $4360/trapline. The overall demand for consumptive and non-consumptive uses probably exceeds the available resource within the area.

The overall demand for wildlife resources present in the planning area is high as indicated in Status of Fish and Wildlife Resource in Alberta (Alberta 1984). Current uses of wildlife resources include recreational use such as hunting and viewing, and commercial use such as trapping and hunter and trail ride outfitting.

Specific demands for, and use of, each wildlife resource in the planning area are not fully known. The demand for most hunted species is probably well above the current supply as indicated by hunter questionnaire surveys. Estimates made in 1985 show that hunting demand (in relation to hunting opportunities permitted) is 4-fold for female elk, 12-fold for female moose and 3-fold for female mule deer in wildlife management unit F314, and 3-fold for non-trophy sheep in S412. The number of recreational user-days for hunting elk, moose, bighorn sheep, mule deer and white-tailed deer was estimated to be 24 247 in 1985 for wildlife management units S414, S412, F316 and a portion of F314. Although it is known that recreational hunting also occurs in this area for upland game birds, black bear and cougar, there are currently no estimates of user days available for these species.

The potential for increased use of wildlife species depends on many factors including manipulation of populations and availability of habitat. The potential for maintaining and improving populations is high in the planning area.

Objectives

1. To maintain or increase numbers, distribution, productivity and diversity of wildlife populations, particularly ungulates, furbearers, furbearing carnivores, game birds and endangered, threatened, rare or extirpated species.
2. To maintain or increase distribution, diversity and quality of wildlife habitat required to support wildlife populations at optimal densities.
3. To increase opportunities for sport hunting and other recreational uses of wildlife.
4. To maintain existing levels of commercial trapping.
5. To ensure that wildlife populations remain healthy and in balance with their range.
6. To maintain migratory routes, wintering and calving areas crucial to the survival of specific wildlife populations.

Guidelines

1. Primary management of wildlife densities will continue through commercial trapping, recreational hunting and treaty Indian hunting. Recreational hunting and trapping regulations will be adjusted as necessary to manage wildlife populations. Recreational hunting and trapping may be further restricted temporarily as a means to increase populations.
2. Habitat development and improvement programs will be planned and conducted where needed to maintain or increase wildlife populations. These programs will consider timber, recreation and range values and commitments. Programs will be implemented through range and timber management plans where suitable, and through the Buck for Wildlife Program. They will involve such activities as vegetation manipulation including prescribed burning and/or mechanical treatment where appropriate.
3. Field surveys will be conducted on seismic and industrial access roads to determine where uncontrolled public vehicle use is having significant adverse effects on wildlife populations.
4. The proposed access management plan will be reviewed to ensure that access for hunting will be maintained where compatible with other resource activities and protection of the wildlife resource.

5. Land use activity and resource development applications will be reviewed to identify potential impacts on wildlife. Conditions will be placed on applications and activities to avoid displacement or loss of wildlife or habitat. Conditions may include changes in location and timing of activity and development.

6. Recreational development and range management plans will be reviewed for compatibility with wildlife management objectives. Means to minimize impacts on wildlife resources and improve hunting opportunities will also be identified.

7. Forest management and timber harvesting plans will be reviewed for opportunities to maximize forest diversity for increasing wildlife species, and to ensure habitat requirements for selected species are met.

8. Forage production and use by cattle and wildlife will be monitored to determine if adequate forage is available on rangelands to meet wildlife objectives.

2.3 Fisheries

Lakes which can support fish populations are limited in the area and are discussed by RMA. About half the 19 creeks or river systems in the Ghost River Planning Area are considered to have good capabilities for supporting sportfish. The most common fish species present are brook trout, bull trout, brown trout and mountain whitefish.

Fishing is a major pastime for campers and day users in the area, especially on easily accessible streams. There is no commercial fishing. The number of user-days of fishing is not known, but approximately 46 per cent of the visitors to the area fish during their visit. It is believed that most visitors originate from the Calgary area.

Objectives

1. To maintain and/or increase naturally reproducing fish populations and establish new populations in suitable locations.

2. To maintain optimum instream flows for fish.

3. To maintain and/or increase the quality and quantity of aquatic habitat conducive to maintaining high water quality and supporting fish populations at optimum densities.

4. To protect spawning, overwintering and rearing areas, and migratory routes crucial to the survival of specific fish populations.

5. To increase and diversify recreational fishing opportunities.

6. To provide a success rate of 0.3 fish per angler hour on naturally reproducing populations and high altitude lakes, and 0.5 fish per angler hour on productive stocked lakes.

7. To provide appropriate access to the fisheries resource.

8. To inform and educate the public in the conservation and management of the fisheries resource.

Guidelines

1. Land use applications and resource development plans will be reviewed to identify potential impacts on fisheries. Appropriate conditions will be placed on them to avoid destruction or loss of habitat. Conditions may include changes in location, timing of activity, or development and construction methods. Rehabilitation measures may be required, particularly for key fisheries habitat such as crucial spawning, rearing or overwintering areas.

2. Angling regulations will undergo regular review in relation to angler use, harvest levels and fish population conditions to ensure the long-term survival of naturally reproducing resident sportfish populations, particularly bull and cutthroat trout. Innovative angling regulations may be required to maintain naturally reproducing populations.

3. Motorized and non-motorized trail developments will be reviewed and monitored to ensure that such trails do not damage fish habitat and that adequate stream crossings are installed.

4. Angling opportunities will be provided by enhancing the diversity of fish species available, the angling methods and angling locations. This will include development of new fisheries through lake development and stocking programs.

5. Development of fisheries enhancement or improvement programs will be implemented through the Buck for Wildlife Program and in co-operation with other agencies.

2.4 Recreation

The planning area is noted for its diversity of recreational uses resulting from its proximity to the City of Calgary and the ability of the land to sustain a variety of recreational pursuits. Most of the recreational use originates from the City of Calgary, the Town of Cochrane and smaller communities within and east of the planning area and is concentrated on weekends. A lesser degree of transient recreational use, associated with tourism along the Forestry Trunk Road (SR 940), also occurs. The potential exists to increase recreation use in the area.

Typical recreational pursuits in the planning area include camping, hunting, fishing, off-highway vehicle use, snowmobiling, trail riding, hiking, mountain climbing, ice climbing and scenic drives primarily on developed roads. There are seven forest recreation areas located on a north-south axis provided by the Forestry Trunk Road (SR 940). They provide facilities for three group camps, 328 camping units, 88 picnic sites and staging areas for an estimated 1197 km (960 mi.) of developed off-highway vehicle (OHV), motorcycle and snowmobile trails.

There are currently four Class I commercial trail riding areas in the southern portion of the planning area with trails and campsites located in the more remote, mountainous areas. (See Commercial Trail Riding Policy, APPENDIX A.) Hiking trails are located in the Blackrock Mountain area, along the Ghost River into the Ghost River Wilderness Area, and from the Canmore area through the Exshaw Creek Valley.

Random camping is widespread throughout the planning area and formal camping facilities tend to be heavily overused on long weekends during the summer. Random camping occurs in the planning area as an alternative to the formalized recreational opportunities offered within Kananaskis Country, Alberta Forest Service recreation areas and provincial recreation areas. At present, this recreational pursuit has not created any acute problems within the Ghost River Planning Area with respect to site condition or quality.

Objectives

1. To maintain existing recreational facilities at current provincial standards as required.

2. To provide a wide range of resource-based recreational opportunities.

3. To promote a greater public awareness of existing recreational facilities and opportunities.

4. To create an understanding of environmental concerns associated with recreational use within an integrated management approach.

Guidelines

1. The maintenance and upgrading of existing recreational facilities will continue within the scope of recreational operations and maintenance plans.

2. Public recreational opportunities will be provided according to long-range recreational development plans employing an integrated approach.

3. Development of recreational opportunities by the private sector on public land will be encouraged where the intent of the recreational use is compatible with environmental conditions, demand and other ongoing or anticipated land uses.

4. Visitor services, including user awareness and education, information services and promotional efforts, will be considered as components of the forest recreation approach in the planning area.

5. Management of random camping activity will be determined on the basis of ongoing site observation. Should site impacts resulting from this activity exceed acceptable levels, site hardening, closure and

rehabilitation or relocation of the activity to other identified sites will be considered.

2.5 Access

Most of the planning area is accessible by public and industrial roads and a variety of seismic, hiking, equestrian and other trails. The upper elevations of the western portions have the least access, consisting mainly of hiking, equestrian and off-highway vehicle trails. Access to the central portions is mainly by the Forestry Trunk Road (SR 940) (portions of which are being upgraded) and a variety of seismic, recreational and other trails. The TransAlta Utilities road into Devil's Gap provides access along the Ghost River. In the east-central portion of the study area the Harold Creek road, which is currently being upgraded, provides access along with a large number of seismic trails. Access to the remainder of the eastern portion is by local public roads and seismic trails. The portion of the planning area south of Indian Reserves 142, 143 and 144 is reached by Highway 1 and Secondary Road 968 along with seismic and other trails.

Off-highway vehicle use is a legitimate activity and highly valued by many users of the area. Recreational off-highway vehicle use has had some localized impacts in the Ghost River Planning Area. Indiscriminate use has the potential to cause additional impact on terrain, vegetation, wildlife and water quality.

Objectives

1. To provide a range of opportunities for summer and winter recreational off-highway vehicle use.

2. To minimize conflicts between recreational off-highway vehicle users and other users.

3. To minimize environmental impacts through the management of recreational off-highway vehicle use.

Guidelines

1. An access management plan will be prepared for the entire planning area to determine an access network suitable for summer and winter recreational off-highway vehicle use. In the development and approval of the access management plan, public education and regulatory strategies under the Forests Act will be considered as implementation mechanisms as required. The access management plan will be developed on a co-operative basis and will be subject to involvement and review by interested government resource management agencies, local authorities, the general public and public interest groups. More specific guidelines are given, as necessary, on a RMA basis.

2. Snowmobile use will be considered and permitted on selected routes in Zone 1 when approved through the access management plan. Snowmobile use will be permitted only under certain circumstances in Critical Wildlife (Zone 2) areas providing critical ungulate winter range.

2.6 Tourism

The planning area is within a two-hour drive of a resident population of over 600 000 people. In 1982, the Calgary/Canmore area received over 1 million non-resident visitors. A preliminary profile of these visitors indicates that they visit primarily in the summer from the United States, British Columbia, Saskatchewan and Ontario, and they travel by private vehicle. Almost half these visitors stayed with friends or relatives, while just over 40 per cent stayed in motels/hotels. Only 7 per cent used campgrounds. Vacationing was the main trip purpose for over half these travellers with sightseeing (69 per cent), visiting friends and relatives (57 per cent), and resting and relaxing (45 per cent) as their primary activities. Only 12 per cent indicated they took part in backpacking and hiking.

The Forestry Trunk Road is the major scenic route through the planning area. Many non-resident visitors are interested in the beautiful scenery of the foothills as seen from this road. This passive form of outdoor activity is referred to as "auto touring".

It is anticipated that an increasing number of visitors, both resident and non-resident, will be interested in auto touring on the Forestry Trunk Road in order to experience the splendour of Alberta's foothills. There is no increase in backcountry use anticipated as a result of an increase in auto touring.

There have been no formal surveys completed on Albertan recreational activity patterns within this area, but from public input and field staff observation, several user types can be described. Residents who frequent the area for recreational purposes include backcountry hikers and backpackers, fishermen, hunters, off-highway vehicle enthusiasts and horseback riders. They are primarily weekend-oriented visitors within a day's drive of their place of residence and enjoy the random use that presently exists. Considering the varied demand on this area for recreation, and the wide range of visitors to the area, it will become increasingly important to allow for some basic service development (e.g., gas station and corner grocery.) It is also important to recognize that certain commercial tourism facilities (such as backcountry lodges) may be economically viable in the planning area.

Objectives

1. To facilitate tourism use of the planning area by resident and non-resident visitors through consideration of a variety of compatible service developments.

2. To provide opportunity for the development of private sector commercial tourism and recreational facilities and activities.

Guidelines

1. A variety of tourism and recreational opportunities such as commercial trail riding and staging areas, backcountry lodges and youth hostels, outfitting/guiding operations for hiking and hunting, summer and winter recreational off-highway vehicle use, cross-country skiing and touring activities will be accommodated where appropriate in the planning area. The development of support services to facilitate travel in, and use of, the area will also be accommodated where appropriate through consultation with M. D. 8, I.D. 8 and other responsible government agencies.

2. Planning assistance will be provided to existing and potential operators of commercial tourism facilities and services in the planning area. Marketing and demand information and promotion advice will be supplied, where possible.

3. Private sector individuals or companies interested in commercial tourism facility development will be expected to show economic feasibility and assess environmental impacts prior to project approval.

2.7 Timber

The timber resource is presently managed under two forest management units (FMUs), B8 and B02. As of May 1, 1986, the B3, B4 and B5 FMUs were amalgamated to form the B8 FMU with an estimated coniferous annual allowable cut of 141 000 m^3 (32 853 mFbm) based on a 15+/11 cm utilization standard. This has resulted in a more balanced age-class distribution incorporating the younger age classes from the former B3 FMU, and will promote a regulated forest situation over the long term. A portion of the former B2 FMU in this planning area has been incorporated in the B7 FMU which, for the most part, is located in the Kananaskis Country Planning Area. As a result, the B7 FMU has not been included in annual allowable cut calculations for the Ghost River Planning Area.

An estimated coniferous annual allowable cut of 17 500 m^3 (4078 mFbm) will be available from the Water Valley, Dogpound, Fallentimber and South Ghost miscellaneous timber use (MTU) areas for local residents and small commercial operators. Firewood cutting areas in the planning area will continue to be available for commercial and non-commercial use.

It is anticipated that commercial demand for forest products will be satisfied through commercial timber permits and three timber quota allocations. Timber quota allocations include an estimated 85 244 m^3 (19 862 mFbm) at a 15+/11 cm utilization standard, and 10 837 m^3 (2525 mFbm) employing a modified 19 cm utilization standard on an annual basis. Existing and/or additional resource allocations will remain within the limits of sustained yield forest management.

The B8 forest management unit is capable of supporting an estimated annual allowable cut of 6200 m^3 (1445 mFbm) for deciduous timber at a 15+/11 cm utilization standard. Should demand for deciduous forest products become apparent in the future, commercial and local uses of this resource will been encouraged.

Dwarf mistletoe, found in the B8 forest management unit, is a parasitic plant that attacks lodgepole pine and, occasionally, white spruce. The parasite tends to reduce the life functions of its host, resulting eventually in mortality, either directly or through the introduction of secondary pathogens to weakened forest stands.

Intensive and extensive surveys of dwarf mistletoe commenced in November 1984 to develop a method by which occurrences could be systematically surveyed throughout the Bow/Crow Forest and to provide relevant information for forest management purposes. Surveys completed in March 1986 indicate a significant occurrence of the parasite within the planning area. Estimates from aerial reconnaissance suggest that of the 121 656 ha (300 608 ac.) of pine and mixed pine forest types on public land; 16 196 ha (40 020 ac.) have been confirmed as infected and 1526 ha (3771 ac.) have been identified as infected. An estimated 781 ha (1930 ac.) of pine forest types on privately owned lands are also infected.

Forest management throughout the Ghost River Planning Area includes the provision and maintenance of a sustained yield land base capable of satisfying both commercial and local demands for forest products. Forest management techniques intended to promote a healthy and stable forest environment, in conjunction with other demands on the forest land base, are also employed.

As the Ghost River Planning Area provides opportunities for a wide range of land uses, fire protection measures are important to ensure the safety of the public who recreate or make their livelihoods in the area, and to protect natural resources. The planning area is, for the most part, located within the forest protection area and has experienced a high frequency of both man-made and lightning-induced fire starts since 1980.

Forest protection measures, with respect to wildfires, involve a number of components including fire prevention, detection, pre-suppression and suppression. Fire prevention involves public education and direct contact with the public in an effort to prevent or minimize the risk of wildfires before they occur. Detection efforts include five lookouts located in the Keystone Hills, Mockingbird Hill, Burnt Timber (near North Burnt Timber Creek), Blue Hill (north of the Red Deer River) and Barrier Lake (formerly located on Pigeon Mountain in Kananaskis Country). Lightning detectors located throughout the Eastern Slopes provide accurate detection information as does aerial detection involving regular patrols. The public, both local residents and visitors, also play an important role in fire detection.

Pre-suppression and suppression efforts include the mobilization and deployment of initial attack crews generally located at the Ghost Ranger Headquarters and the Red Deer Guardian Station. In addition, a "helitack" crew is periodically located at the station. Airtanker bases are located at Calgary and Rocky Mountain House. The deployment of crews and equipment is dependent upon forest conditions and fire danger ratings. The public, including ranchers, local residents and industry fire suppression crews, have participated in forest fire situations.

Objectives

1. To manage the forest resource and sustained yield land base to satisfy commercial and local requirements for forest products.

2. To examine and promote the expansion of forest product allocation levels, where feasible, allowing a balanced age-class distribution and a regulated forest situation over the long term.

3. To protect the forest from damage, including destruction by fire, insects, disease or other causes, and maintain healthy and stable forest conditions.

4. To protect the forest from wildfires and maintain public safety, prevent property damage and protect the natural resources in the planning area.

5. To encourage forest research in insect and disease management problems, site productivity and reforestation on steep slopes.

6. To manage forest vegetation in a manner that will not cause detrimental changes to streamflow characteristics.

Guidelines

1. The forest land base includes all lands within the Bow/Crow Forest where forest management for sustained yield production or other purposes may be undertaken. The sustained yield land base generally consists of lands designated as zones under the Eastern Slopes Policy where logging is a compatible or permitted land use activity.

2. The sustained yield land base will be managed to provide for an estimated commercial demand level of 85 244 m^3 (19 862 mFbm) at 15+/11 cm utilization standard and 10 837 m^3 (2525 mFbm) employing a modified 19 cm utilization standard on an annual basis for coniferous timber. Existing or additional coniferous timber quota allocations will remain within the limits of sustained yield forest management.

3. An estimated deciduous annual allowable cut of 6200 m^3 (1445 mFbm) will be available for local or commercial use at the 15+/11 cm utilization standard, as demand warrants.

4. Miscellaneous timber use areas will be formally established and continue to be a source of wood products for local residents and small commercial operators. A volume estimate is given within the Little Red Deer RMA. Refer to the Little Red Deer and Water Valley RMAs for specific guidelines.

5. Timber harvesting will be conducted using landscape logging techniques applied in the Bow/Crow Forest, the Forest Landscape Management Guidelines for Alberta (Alberta 1986) and principles contained in the Timber Harvest Cutblock Design Manual (Alberta 1977).

6. Continued and increased productivity of the forest land base will be ensured through intensive forest management techniques, reclamation of surface disturbances and reforestation of harvested stands according to the established reforestation policy.

7. Sanitation treatments and/or salvage operations will occur where required throughout the forest land base following analysis and consideration of potential environmental impacts and referral to resource management agencies.

8. Forest fuel modification treatments by mechanical means or the use of prescribed burns will be considered for forest management purposes throughout the planning area to reduce the risk of wildfire, maintain public safety and increase forest productivity.

9. Timber management plans will integrate harvesting and reforestation with other land use activities such as recreational developments, range management and wildlife habitat management.

10. Reforestation efforts will consider the use of a diversity of tree species in the vicinity of recreation facilities and high use areas under general recreation reservations.

11. The impacts of logging operations on watersheds will be minimized by ensuring adherence to operational ground rules, pre- and post-operational watershed assessments, and procedures in the internal referral systems of the provincial government.

12. The dwarf mistletoe survey program has been concluded in this portion of the Bow/Crow Forest. Assessments of the impacts on the forest resource will be undertaken, with subsequent control treatments expanded and implemented to control the spread of this disease where possible.

13. Forest management activities will be directed at the maintenance or improvement of water yields. The use of tested procedures to predict water yield changes resulting from vegetation changes will guide resource management programming.

14. Resource and land development proposals or projects will include fire protection assessments as part of the internal referral systems of the provincial government through the Forest Protection

Branch. Assessments will address public safety aspects and risk management associated with the size and location of developments within the forest protection area. Consultative services concerning forest protection measures will be available to M.D. 8 and I.D. 8 adjacent to the forest protection area.

15. Fire protection measures will continue to be undertaken throughout the planning area as a component of the fire management program developed for the Bow/Crow Forest. The use of fire prescribed for land or resource management purposes will be strictly controlled and monitored according to fire management policy.

2.8 Range

Domestic grazing has been an integral component of the land use pattern in the planning area since the turn of the century. Rangelands within the forest reserve portion were heavily grazed in the early 1900s to help reduce the wildfire hazard resulting from fuel build-up. As a result of this practice, rangelands were overgrazed and a subsequent deterioration of range conditions occurred. In the 1950s, as the knowledge of range management improved, reductions in range use were employed to return the range to a condition capable of sustaining long-term use. The loss of productive rangelands to brush encroachment and an estimated 200 escaped or abandoned horses within the Ghost River Planning Area have continued to contribute to the reduction of forage available for domestic livestock and wildlife.

There are currently 10 grazing allotments in the Rocky Mountain Forest Reserve portion of the Ghost River Planning Area. The carrying capacity on the grazing allotments is estimated at 7857 animal unit months (AUMs) provided by 19 367 ha (47 855 ac.) of primary and secondary range.

There are 18 complete, and portions of six, grazing leases in the Green Area outside the Rocky Mountain Forest Reserve. Covering approximately 23 660 ha (58 463 ac.), they support an estimated 12 722 AUMs. In addition, there are 10 grazing permits covering approximately 4381 ha (10 825 ac.) supporting an estimated 2274 AUMs.

Grazing leases or permits have been issued for the majority of public land in the White Area portion of the planning area (10 553 ha or 26 076 ac.). In total, 6648 AUMs are provided on 37 grazing leases and seven grazing permits. Grazing leases and permits are grazed in conjunction with adjacent private land. Brush encroachment and increased canopy cover have reduced the forage available for domestic livestock. Rotational logging has helped to offset the decrease of available forage in the short term.

Objectives

1. To provide rangelands within the planning area that will support at least 29 501 AUMs in accordance with the commitment to maintain 1977 grazing levels for domestic livestock.

2. To maintain the rangelands in good condition for use by domestic livestock and wildlife.

3. To reduce the annual loss of rangelands from vegetation succession and conflicting resource uses.

4. To encourage more intensive management of domestic livestock within range allotments, leases and permits to achieve uniform forage use and good range conditions.

Guidelines

1. Range objectives are to be achieved using primary rangelands and range management techniques and improvements prescribed in range management and range development plans. The use of secondary rangelands will be promoted where feasible to supplement existing use on primary rangelands.

2. Range management plans for grazing dispositions will be completed and/or updated every five to 10 years, or more often as needed. Range management plans will contain provisions for range improvement projects and other range management practices required to maintain

the range resources. Range management plans are subject to watershed and wildlife assessments.

3. Range improvement programs will be considered to maintain long-term forage productivity. All improvements will preserve the intent of the zone in which they are conducted.

4. A detailed assessment of range improvement requirements will be undertaken to determine the degree of range improvement on allotments, permits and leases required to achieve range management objectives. Range improvements will be accomplished considering wildlife habitat enhancement as a complementary benefit.

5. Range improvements will generally be conducted on suitable areas of brush or aspen vegetation with minimal disturbance to coniferous growing stock. Improvement efforts will be concentrated on areas where vegetation succession has reduced grazing capacities. Treatments may include mechanical removal of vegetation species and the use of prescribed burns for range management purposes.

6. Opportunities for stocking increases based on sound range management practices will be considered on an operational basis during the development of range management plans.

2.9 Minerals

The most important mineral resource of the planning area is natural gas found in 11 gas fields located along the foothills and Front Ranges of the Rocky Mountains. The 1985 total production of natural gas was 1.25 billion m^3, while gas reserves were about 29 billion m^3. This is just over one-and-one half per cent of Alberta's production and reserves of natural gas. There is no production of petroleum here although the Lochend oil field now extends into the area and has potential for discovery of oil.

Coal-bearing strata of the Upper Cretaceous Edmonton Formation occur in the planning area and there is potential for coal resource development. Limited coal exploration has resulted in the identification of two small deposits at Silver Creek and Grand Valley. Several very small mines operated in the first part of this century at these two locations. There is coal potential in a large part of the area.

The area has substantial volumes of limestone and sandstone. At present there is one quarry mining Rundle stone in the Harvie Heights area and one quarry mining sandstone in the Yamnuska area. There are several limestone quarries on the periphery of the planning area, in the Bow Corridor.

Objectives

1. To encourage industry to define the extent of, develop or produce minerals where reserves have been proven or where productive formations exist.

2. To encourage the exploration for mineral resources in previously unexplored areas and formations.

Guidelines

1. All proposals for coal exploration and development will be processed in accordance with A Coal Development Policy for Alberta (1976). Mining and siting of processing facilities will be considered on a site-specific basis in response to Preliminary Disclosures.

2. Renewable resource values are high in Critical Wildlife and General Recreation Zones, and any mineral exploration or development must mitigate any potential resource conflicts.

3. Mineral activity will be governed by Eastern Slopes zoning through normal referral processes.

4. In most cases, mineral activity will be allowed in Zone 2 if the following criteria are met:

    - avoidance, if possible, of key habitat areas by the project;

- where avoidance is not possible, development should be designed to minimize disturbance of wildlife habitat and provide mitigative measures to maintain habitat capability throughout the project; and
- reclamation plans should have wildlife habitat as a high priority and retain the pre-disturbance wildlife capability of the project area whenever possible.

2.10 Historical Resources

The Ghost River area has not been subjected to intensive investigation of its prehistoric past, but over 100 archaeological sites have been identified. It is likely that the area was used for at least the last 12 000 years, but its use was likely less intensive than in surrounding areas associated with major watercourses. The most intensive use would have been along the Ghost, Dogpound, Waiparous and Fallentimber drainage systems.

Sites representing the material remains of hunters who frequented the region in the past 12 000 years have been identified in, or adjacent to, the planning area. The area is considered to have a high potential for the discovery of additional sites particularly along terraces above streams and rivers, along lakeshores or the margins of wetlands, and in areas where bedrock or cobbles of material suitable for the manufacture of stone tools have been exposed.

The Ghost River area first became readily accessible in the 1880s with completion of the railway to Cochrane. This opened markets for ranchers who had moved into the area in the 1870s. Logging was one of the first commercial activities, occurring along the Burnt Timber, Fallentimber, Ghost and Waiparous basins. Access to the area was mainly by foot or horseback until 1953, when the Forestry Trunk Road was completed and oil and gas exploration intensified through the 1950s, 1960s and 1970s. The waters of the North Ghost River were diverted into Lake Minnewanka in 1942.

The area is within the disturbed belts comprising the Rocky Mountain Front Ranges. The foothills belt (Little Red Deer River and Water Valley RMAs) is underlain by Upper Cretaceous clastic units. Formations include the Blackstone, Cardium, and Wapiabi formations of the Alberta Group and Brazeau Formation. The fossils present in these units include such organisms as foraminifera, pelecypods, gastropods, cephalopods and rare fish bones. Dinosaur bones have been recovered from equivalent units in the Nordegg area of Alberta. At the present time most of this foothills region is covered by thick conifer forests. The outcrops of bedrock, usually occurring along streams, are areas of maximum impact. At times construction of roads in the area has exposed these units and they have provided some fossil material. In the subsurface there should be units of the Blairmore Group (Lower Cretaceous), Kootenay Formation (Upper Jurassic - Lower Cretaceous) and Fernie Formation (Jurassic). These units are exposed both north and south of the Ghost River area and may be close to the surface within the area. All three units are fossiliferous in other areas of the foothills belt, and the Kootenay has been extensively mined for fossils in the Bow River Valley.

Once within the Rocky Mountain Front Ranges (Ghost Wilderness, Upper Ghost, Fallentimber and Waiparous RMAs), the sequence of units changes drastically. The sequence is entirely Palaeozoic with units of Cambrian, Devonian and Carboniferous ages mapped in the area. Invertebrate fossils are common in a large number of the formations and there are probably a number of undescribed potential palaeontological sites in the region. The Cambrian units include the Eldon, Pika and Arctomys formations, and the Lynx Group. Trilobites and brachiopods have been recovered from these units in the vicinity.

The Devonian units include Yahatinda (oldest plants in western Canada and fish bones), Cairn, Southesk, Alexo and Palliser formations.

These contain corals, stromatoporids, brachiopods, crinoids, bryozoa, etc. The Carboniferous units encountered include the Exshaw and Banff formations and Rundle Group which have cephalopods, brachiopods, corals, crinoids, bryozoa, pelecypods and gastropods. Thus, all these units are to some extent fossiliferous. The Front Ranges have excellent exposures not only along streams but also along the exposed eastern faces of the mountains.

Objective

1. To protect historical resources (historic, prehistoric and palaeontological) from potential or actual impact related to future resource development and to manage these resources for future generations.

Guidelines

1. Resource uses in the planning area involving land surface disturbance may require Historical Resources Impact Assessments before development, as outlined under Section 33(2) of the Historical Resources Act.

2. The Archaeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review proposed development projects within those areas considered to have high historical resource potential.

2.11 Ecological Resources

Ecological resources are unique or representative features or systems that have been identified in the planning area. One Wilderness Area, two Natural Areas and one significant ecological area are located in the planning area. The Ghost River Wilderness Area is located in the headwaters of the Ghost River. Ole Buck Mountain Natural Area (Section 5, pt. Section 7-25-6 W5) is located in the Westover Lake area south of Indian Reserves 142, 143 and 144, and Wildcat Island Natural Area (SW 15-26-3 W5, the island only) is located in the Bow River near Beaupre Creek. One ecologically significant area is located near Winchell Lake south of Water Valley (Winchell Creek, NW 2-29-5 W5).

Objectives

1. To preserve selected unique or representative ecosystems or features.

2. To provide for the recreational, scientific and educational uses of ecological resources.

Guidelines

1. Existing land use reservations will be maintained to protect ecologically significant areas until further protection, such as natural area or ecological reserve designations, is approved and established.

2. For any areas approved as Ecological Reserves or Natural Areas, a management plan will be prepared with interdepartmental and public participation. The plan will outline purpose, boundaries and permitted uses in keeping with guidelines in the Ghost River Sub-Regional Integrated Resource Plan.

3. RESOURCE MANAGEMENT AREA INTENTS, OBJECTIVES AND GUIDELINES

The general resource management objectives and guidelines described in the previous chapter do not apply evenly across the planning area. To facilitate the planning exercise, the planning area was divided into six resource management areas (RMAs). These RMAs are geographic areas that have common landscapes, resources, demands, current use and potential for resource management. The six RMAs identified in the Ghost River Planning Area (Figure 2, p. 7) are as follows:

A) Ghost Wilderness;
B) Upper Ghost;
C) Fallentimber;
D) Waiparous;
E) Little Red Deer; and
F) Water Valley.

Each RMA is examined individually to provide a detailed framework for decision-making. The specific management intent is unique to each RMA while the specific resource objectives and resource management guidelines may be repeated in two or more RMAs. The specific resource objectives and resource management guidelines are presented by resource sector. As well, the Eastern Slopes zoning configuration is identified.

It is recognized that conflicts between specific resource management objectives may exist within each RMA, so resource management guidelines are provided for each RMA to aid in the integration of objectives and minimize conflict. Whenever a particular resource is not mentioned in the specific resource objectives and guidelines, the broad resource objectives and guidelines described in Chapter 2 apply.

3.1 Ghost Wilderness Resource Management Area

This RMA corresponds to the Ghost River Wilderness Area (Figure 3) which is established under the Wilderness Areas, Ecological Reserves and Natural Areas Act. Management of the wilderness area is the responsibility of Alberta Recreation and Parks. The area is composed entirely of Alpine and Subalpine ecoregions. The Alpine portion is dominated by exposed limestone bedrock while small pockets of dwarf shrubs, graminoids and stunted alpine fir are found on eroded sandstones and shales. Slopes are steep and colluvium with Engelmann spruce and lodgepole pine forests dominate the Subalpine ecoregion.

Significant mountain goat and bighorn sheep populations currently use ranges within the Ghost River Wilderness Area in conjunction with ranges in the Upper Ghost RMA and Banff National Park. Little information is available on other wildlife species such as ptarmigan, grizzly bear and wolverine or on the fisheries resources. This area contains the upper portion of the Ghost River drainage system. There are no known mineral deposits in this RMA.

Recreational activities such as climbing and hiking occur in this RMA to a very limited extent. Because of limited development, presence of wildlife, natural beauty and low recreational uses, this RMA is recognized for its wildland values and ability to provide a quality wildland recreational experience.

The management intent of the Ghost Wilderness RMA is to protect and manage this area of Alberta for the purposes of preserving its natural beauty, and safeguarding it from impairment and industrial development. (See the preamble to the Wilderness Areas, Ecological Reserves and Natural Areas Act, 1984.)

Objectives and Guidelines

Specific resource objectives and guidelines are not required for the Ghost Wilderness RMA as all programs must adhere to conditions set out in the Wilderness Areas, Ecological Reserves and Natural Areas Act. Resource management in this RMA will be subject to management plans where required and prepared and implemented by Alberta Recreation and Parks in accordance with the act and regulations thereunder.

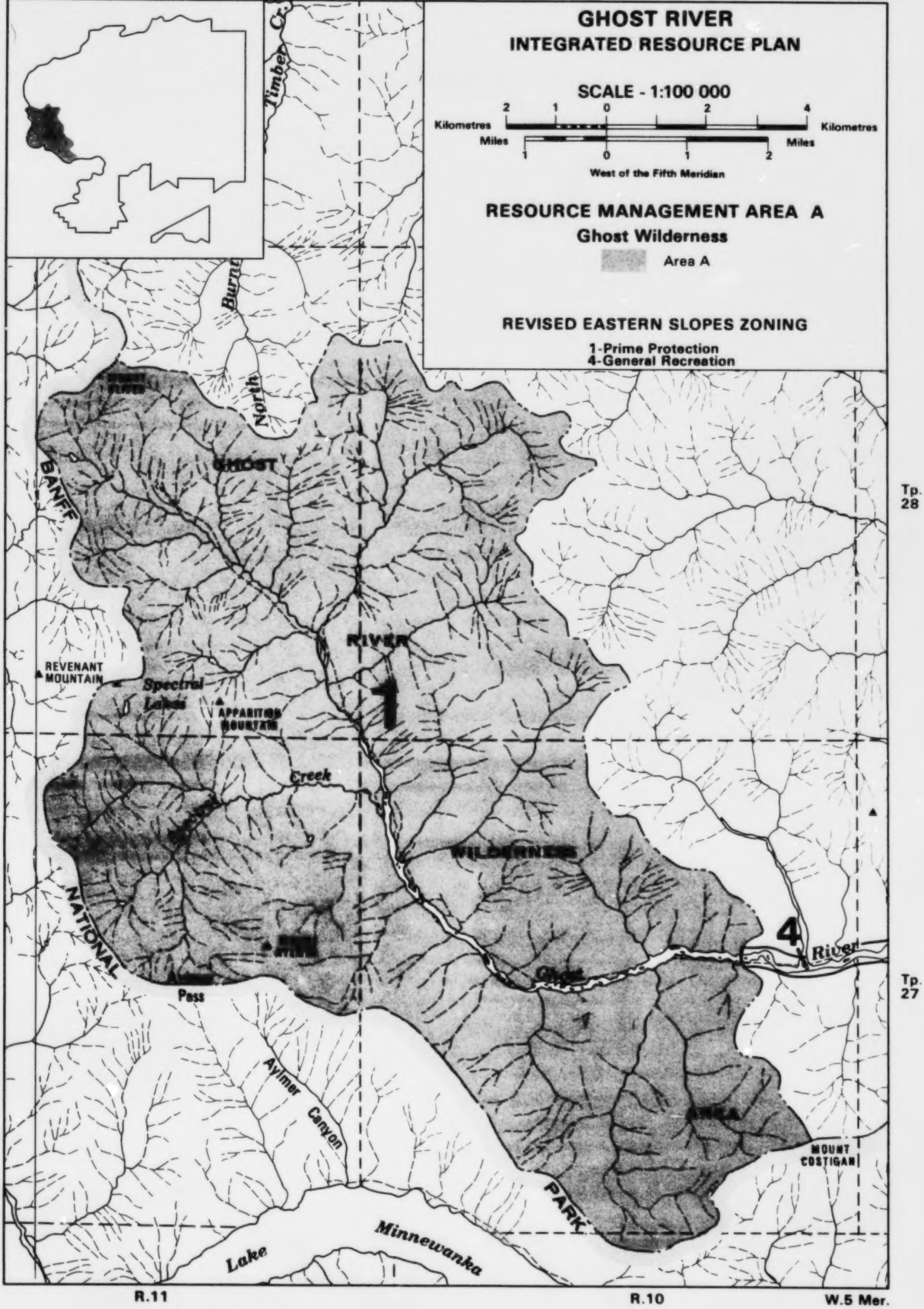

GHOST RIVER
INTEGRATED RESOURCE PLAN
SCALE - 1:100 000
2 1 0 2 4
Kilometres
Kilometres
Miles
Miles
1 0 1 2
West of the Fifth Meridian
RESOURCE MANAGEMENT AREA A
Ghost Wilderness
Area A
REVISED EASTERN SLOPES ZONING
1-Prime Protection
4-General Recreation
Timber Cr.
Burnt
North
BANFF
GHOST
RIVER
1
REVENANT MOUNTAIN
Spectral Lakes
APPARITION MOUNTAIN
Creek
WILDERNESS
NATIONAL
Pass
4
River
Ghost
AREA
MOUNT COSTIGAN
Aylmer Canyon
PARK
Lake Minnewanka
Tp. 28
Tp. 27
R.11
R.10
W.5 Mer.

Fig. 3 Ghost Wilderness Resource Management Area

In keeping with the intent of the Wilderness Areas, Ecological Reserves and Natural Areas Act, no mineral or other resource extraction is permitted in this RMA. Hunting, trapping and fishing are also not permitted. Access is only allowed by foot. Use of the area is strictly controlled.

3.2 Upper Ghost RMA

The Upper Ghost RMA consists of the Front Ranges of the planning area outside the Ghost River RMA (Figure 4). It contains Alpine and Subalpine ecoregions along with portions of the Montane Ecoregion. The Montane Ecoregion in this RMA is dominated by extreme to very steep slopes. South-facing slopes are mainly grassland with scattered aspen, lodgepole pine or Douglas fir. North-facing slopes commonly have mixedwood forests of a variety of age classes.

The management intent of the Upper Ghost RMA is to protect the watershed; environmentally sensitive terrain; rare, fragile or representative landscapes; and critical wildlife ranges.

Watershed

This RMA contains the headwaters of the major drainages in the planning area. Parent materials consist of weathered bedrock, colluvium on slopes and coarse material in river valleys. Stream channels are well protected from disturbances. Steep slopes, poorly developed soil and a harsh climate can make disturbances difficult to reclaim. Land use activity, including seismic exploration, has not been as prevalent in the area compared to more eastern portions of the study area.

Objective

1. The broad watershed management objectives apply.

Guideline

1. There are nine reclamation projects proposed for the RMA. They involve the reclamation of an estimated 20.3 km of seismic lines in the North Burnt Timber, Burnt Timber, Fallentimber and Blackrock Mountain areas, and 11.3 km of access trails in the Upper Waiparous and Ghost River/Johnson Lakes areas will also be evaluated.

Wildlife

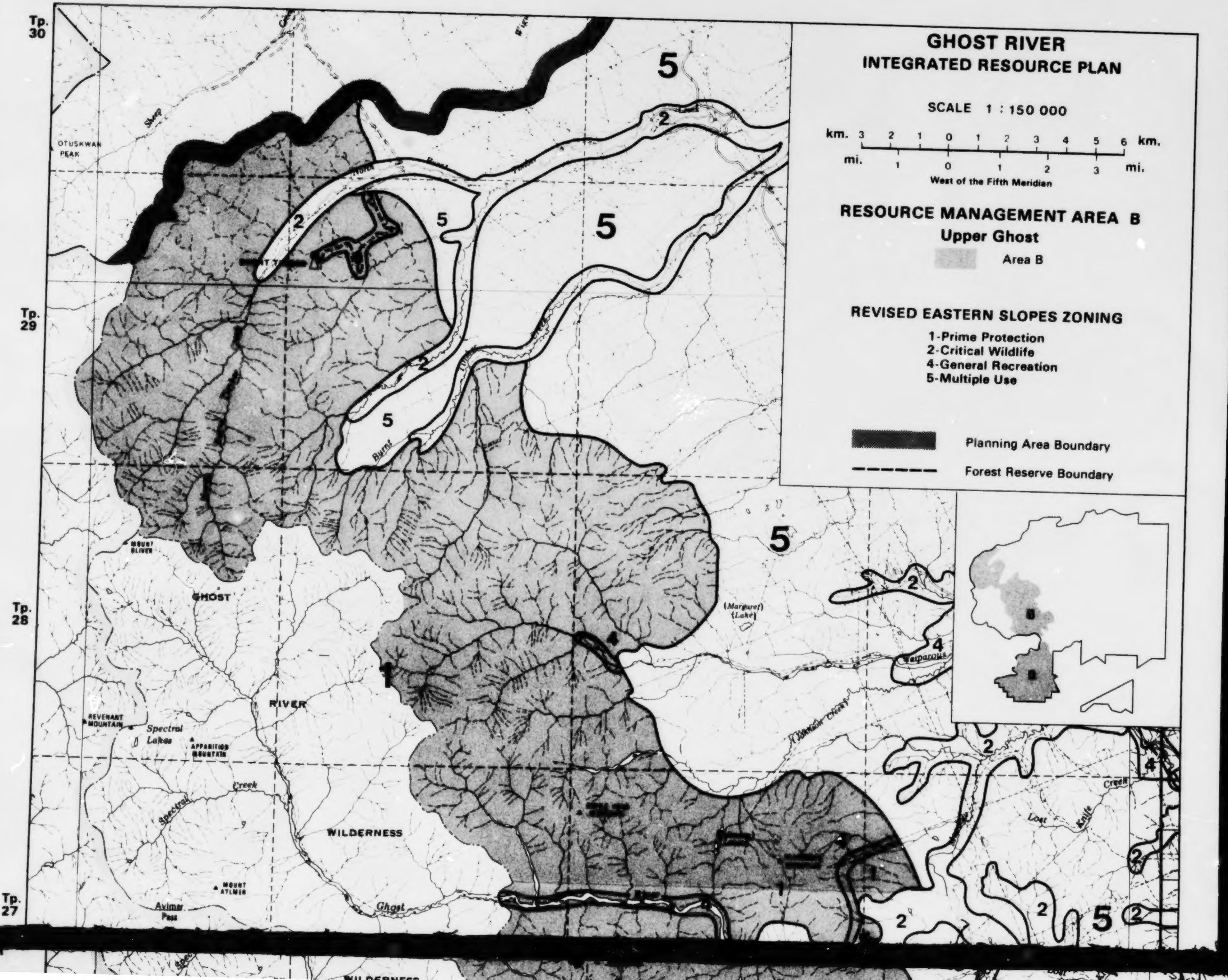
Significant bighorn sheep and mountain goat populations are distributed throughout the alpine areas. The major winter ranges for bighorn sheep include Burnt Timber, Blackrock, Orient Point, End Mountain, Mount Laurie and Mount Charles Stewart areas. Grizzly bear, moose, mule deer and elk populations are present.

Objectives

1. To maintain the existing bighorn sheep population at about 200 animals, and moose population densities at 0.9 and mule deer at 0.8 animals per km^2.
2. To increase the goat population to a minimum of 100 animals.
3. To provide hunting opportunities for goat when numbers reach a sufficient level.
4. To identify and maintain territories or ranges for grizzly bear, goat, elk and wolverine populations.
5. To maintain sheep range with emphasis on protecting and enhancing key habitats.
6. To maintain current annual harvest levels of 12 male elk, three trophy sheep and one grizzly bear on a sustained basis.
7. To increase hunting opportunities, particularly for trophy elk, grizzly bear and goats.

Guidelines

1. Goat populations will be permitted to naturally re-establish themselves through protective measures.
2. Grizzly bears will be transplanted to this area from other areas.


GHOST RIVER
INTEGRATED RESOURCE PLAN
SCALE 1 : 150 000
km. 3 2 1 0 1 2 3 4 5 6 km.
mi. 1 0 1 2 3 mi.
West of the Fifth Meridian
RESOURCE MANAGEMENT AREA B
Upper Ghost
Area B
REVISED EASTERN SLOPES ZONING
1-Prime Protection
2-Critical Wildlife
4-General Recreation
5-Multiple Use
Planning Area Boundary
Forest Reserve Boundary
Tp. 30
Tp. 29
Tp. 28
Tp. 27
OTUSKWAN PEAK
Sheep
Burnt
MOUNT OLIVER
GHOST
RIVER
WILDERNESS
REVENANT MOUNTAIN
Spectral Lakes
APPARITION MOUNTAIN
Spectral Creek
MOUNT AYLMER
Aylmer Pass
Ghost
(Margaret) (Lake)
Waiparous
Lost Knife Creek
5
2
4
1

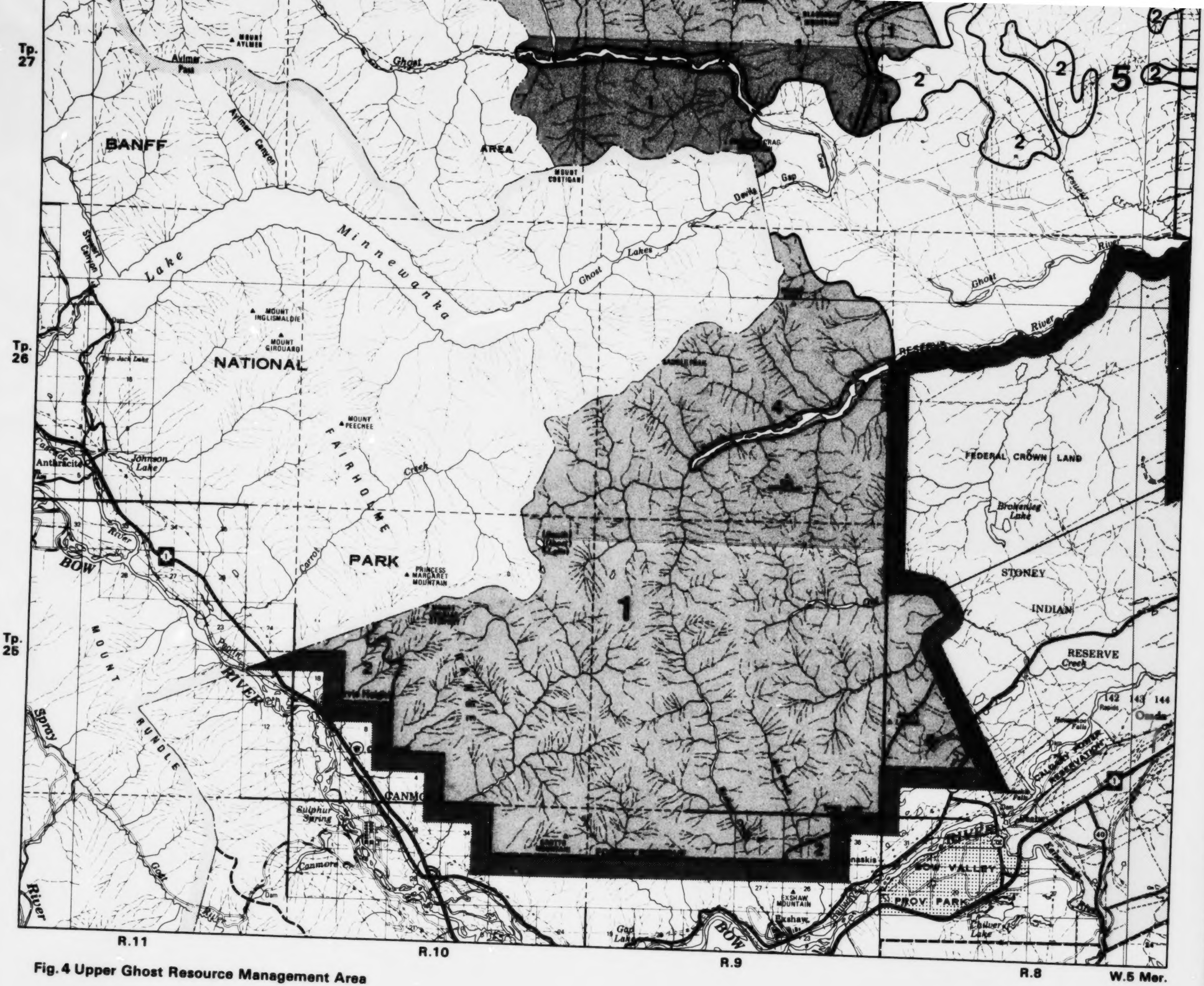

Tp. 27
Tp. 26
Tp. 25
R.11
R.10
R.9
R.8
W.5 Mer.
BANFF
NATIONAL
PARK
AREA
MOUNT AYLMER
Aylmer Pass
Aylmer Canyon
Ghost
Lake Minnewanka
Ghost Lakes
Devils Gap
MOUNT COSTIGAN
CRAG
MOUNT INGLISMALDIE
MOUNT GIROUARD
MOUNT PEECHEE
FAIRHOLME
Creek
Carrot
PRINCESS MARGARET MOUNTAIN
Johnson Lake
Two Jack Lake
Anthracite
Stewart Canyon
BOW
River
RIVER
MOUNT RUNDLE
Spray
River
Goat
Sulphur Spring
Canmore
CANMO
Dam
Ghost River
RESERVE
FEDERAL CROWN LAND
Brokenleg Lake
STONEY
INDIAN
RESERVE
Creek
Lesueur Cr.
CALGARY POWER RESERVATION
BOW VALLEY
PROV. PARK
EXSHAW MOUNTAIN
Exshaw
Gap Lake
Chiniki Lake
1
2
4
5
142
143
144

Fig. 4 Upper Ghost Resource Management Area

3. Present and proposed non-motorized access and recreational activities will be reviewed to determine whether they avoid areas significant to sheep, goat and grizzly bear populations. Means to mitigate impacts will be applied where appropriate.

4. Forest management plans in Zone 1 and Zone 2 will be reviewed to ensure impacts on wildlife and wildlife habitat resources are minimized.

Fisheries

The Upper Ghost RMA contains the headwaters of the South Ghost and North Ghost rivers and Waiparous, Burnt Timber and North Burnt Timber creeks. These streams support sparse gamefish populations of bull trout, cutthroat trout, brook trout and mountain whitefish. The major limiting factors are high velocity, steep gradient, cold water temperatures and unproductive habitats.

Stenton (South Ghost) Lake, located at the headwaters of the South Ghost River, has been stocked with cutthroat trout. North Johnson Lake has overwintering capabilities for maintaining fish populations. Because of its connection with a Waiparous Creek tributary, this lake is naturally stocked with brook, cutthroat and bull trout. The level of present use of these lakes for fishing is unknown, but there is potential here to accommodate some of the high demand for mountain lake sport fishing.

Objectives

1. To maintain 50 gamefish per km in the North Burnt Timber and Waiparous creeks and South Ghost River.

2. To maintain 100 gamefish per km in Burnt Timber Creek and North Ghost River.

3. To protect spawning, rearing and overwintering areas for bull trout in the headwaters of the North Burnt Timber and Burnt Timber creeks, and other streams identified during surveys.

4. To protect areas particularly crucial for bull trout as identified through surveys in the Waiparous Creek and Ghost River drainage.

5. To maintain migratory corridors for bull trout along North Burnt Timber, Burnt Timber and streams identified during surveys.

Guidelines

1. Additional surveys will be conducted by 1990 to identify crucial spawning and rearing areas and to measure fish populations. Populations will be monitored every 10 years to determine changes in populations and habitat conditions.

2. High altitude lake fisheries will be surveyed and developed where feasible by 1995 to broaden the wilderness backcountry experience that is unique to the high country.

3. Naturally reproducing gamefish populations will be expanded into various creeks where feasible, through regulations, habitat development and introduction programs, to increase sport fishing recreational opportunities.

4. Cutthroat trout will be introduced into the North Burnt Timber and Burnt Timber creeks and golden trout or arctic grayling into suitable lakes.

5. Recreational fishing opportunities will be increased by enhancing the primary production of lakes or streams where appropriate.

6. The amount of recreation provided by the various fisheries will be documented by 1995 and monitored every 10 years. The quantity of gamefish harvested will be measured every 10 years to ensure that continued optimum levels of use and harvests are provided.

7. Lakes and beaver ponds will be surveyed by 1990 to determine stocking potential.

8. Alpine and subalpine lakes will be managed according to the Alberta High

Mountain Lakes Fisheries Management Program. This requires co-operation with the Alberta Forest Service to manage access to and use around these lakes.

9. Careful regulation of angling in high altitude lakes will be required to maintain the fragile ecosystem and the backcountry experience.

10. An information program to inform the public of the sensitive nature of this RMA and its very limited ability to produce gamefish and support recreation will be provided.

11. A feasibility study on introducing golden trout and arctic grayling to provide angling variety will be conducted.

Access

Access in this RMA is much less prevalent than in more eastern portions of the planning area. Seismic activity has occurred on a limited scale and recreational activity, including the use of snowmobiles and off-highway vehicles, has been noted in the upper Waiparous Creek, Blackrock Mountain and Devil's Gap/Johnson Lakes area up to the Ghost River Wilderness Area. Current access is mainly by foot or horseback. Motorized recreational use has been known to occur to a limited degree within the Ghost River Wilderness Area where such use is prohibited.

Objectives

1. To allow motorcycles, 4x4s, all terrain cycles and snow machines access to selected routes and trails.

Guidelines

1. The majority of this form of recreational activity will be directed to the Fallentimber and Waiparous Creek RMAs where facilities already exist. This may be achieved through the use of signs/posters, brochures, visitor information and management messages at trailheads, and the co-operation of the public through contact with clubs, organizations and school groups.

2. Recreational off-highway vehicle access will be restricted to trails in the Zone 4 corridors.

3. Seasonal use and types of vehicles permitted on the Zone 4 corridor trails will be addressed in the access management plan. Motorized recreational vehicle access on the Burnt Timber Lookout trail will be restricted during bighorn lambing season specifically, but timing of use will also be addressed on all other trails.

4. Motorized recreational vehicle access in the Ghost valley bottom near Ghost Wilderness Area will be addressed through the access management plan.

5. Public education or regulatory strategies under the Forests Act will be considered as implementation mechanisms where required, in the development and approval of the access management plan.

Recreation

There are no forest recreational areas, facilities or formal trails within this RMA. Portions of the Blackrock and the proposed Burnt Timber commercial trail riding areas are located in this RMA. Random camping occurs in the Mount Yamnuska area, Devil's Gap area and along the Ghost River. Climbing and hiking also occur in the Mount Yamnuska, Devil's Gap and Phantom Crag areas. Off-highway vehicle use occurs to a limited degree in this RMA. Because of limited resource development, presence of wildlife and natural beauty, this RMA is recognized for its ability to provide a quality wildland recreational experience.

Objectives

1. To maintain existing dispersed, non-motorized recreational opportunities in the RMA.

2. To provide limited trail facilities for existing hiking trails in the central portion of the RMA.

3. To provide motorized recreational opportunities through selected routes and trails.

Guidelines

1. Non-motorized recreational pursuits such as hiking, horseback riding, hunting, fishing and limited motorized recreation vehicle use are compatible with the management intent of this RMA.

2. Recreational off-highway vehicle access will be restricted to existing Zone 4 corridor trails. Serviced camping will not be permitted in the Zone 4 corridors.

3. Hiking and backpacking trails now used in the Blackrock Mountain and Devil's Gap areas will be considered for formalized trailhead development and trail signs according to recreational operations and maintenance plans.

4. The use of trails for commercial trail riding purposes, including overnight camping, will be permitted in the RMA under the provisions of the Commercial Trail Riding Policy.

Timber

The forest contains a variety of age-classes ranging from immature, mature and overmature in the Burnt Timber and North Burnt Timber creeks area to immature and regenerating stands in the south. Overmature stand conditions are also found in the upper South Ghost and Ghost River areas and the upper Johnson and Waiparous Creek areas.

The emphasis for forest management in this RMA will be on the maintenance of forest conditions amenable to watershed protection and wildlife habitat. With the presence of overmature age-classes, and a resulting trend towards senescent and decadent stand conditions, forest management will also include the maintenance of healthy and stable forest conditions.

Objective

1. To maintain healthy and stable forest conditions recognizing watershed, wildlife and recreational values.

Guidelines

1. Watershed protection and wildlife habitat will be important features of forest management planning in the RMA.

2. Sanitation or salvage treatments, if required and feasible, will be concentrated in areas containing forest stands demonstrating senescent and/or decadent conditions or damaged stands in an effort to stabilize forest conditions and minimize the risk or occurrence of wildfire or disease.

Minerals

Natural gas reserves, associated with that part of the Panther River Field which extends into the northern tip of the RMA, are estimated at 300 million m^3. Three natural gas wells associated with this field are located in the Ghost River Planning Area, one of which is in the Upper Ghost RMA. All three wells are capped and there is currently no hydrocarbon production from the RMA. Petroleum and natural gas infrastructure consists of access to the one wellsite. Gas of the Panther River Field contains a high percentage of hydrogen sulphide. Approximately five per cent of the RMA is under petroleum and natural gas disposition, all in the Panther River Field. There is step-out natural gas potential in the area around the field because it was discovered prior to July 21, 1977.

Quarriable mineral resources exist in the extensively exposed Paleozoic strata and this, in combination with the proximity of the Trans-Canada Highway and the Canadian Pacific Railway main line, makes these quarriable mineral resources very important provincially. Three quarriable mineral leases exist along the southern edge of the RMA - two of which have quarries developed on them.

One quarry located near Harvie Heights has been a small operation, providing about 1000 tonnes per year of Rundle stone. The other quarry at Mount Yamnuska is owned by Canada Cement Lafarge and has been producing about 14 000 tonnes per year of sandstone. Both quarries have been granted surface access for the purpose of quarrying. A quarriable mineral lease also extends into the planning area east of Jura Creek.

Objectives

1. To allow the assessment and development of petroleum and natural gas reserves within the productive geological structures of the Panther River gas field.

2. To allow the existing quarries to continue their operations.

Guideline

1. Except for step-out activities, exploration and development of petroleum and natural gas will not be permitted in the Prime Protection and General Recreation corridor portions of the RMA.

2. Exploration and development of coal in this RMA will not be permitted.

3. Development or expansion of quarries in the Prime Protection portion of the RMA will not be permitted, but activity will be permitted on existing quarriable mineral leases under appropriate conditions in the Zone 2 and Zone 5 portions of the RMA. Additional leases in Zone 2 and Zone 5 may be considered.

Historical Resources

The Upper Ghost RMA has not been the subject of any systematic inventory of historical resources. However, considerable potential exists for the occurrence of prehistoric archaeological sites. Areas exhibiting such potential are those suitable for encampments and other activities associated with exploitation of the high elevation plant and game resources which characterize the area. These include flat terraces (especially south-facing) above streams and rivers, shores or small lakes, alpine meadows and exposures of bedrock suitable for stone tool manufacture. These sites represent the remains of native hunters who have frequented the area for over 12 000 years.

Objective

1. The broad objective applies.

Guidelines

1. The Archaeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review any proposed developments in the following portions of the RMA considered to be of high historical resource potential.

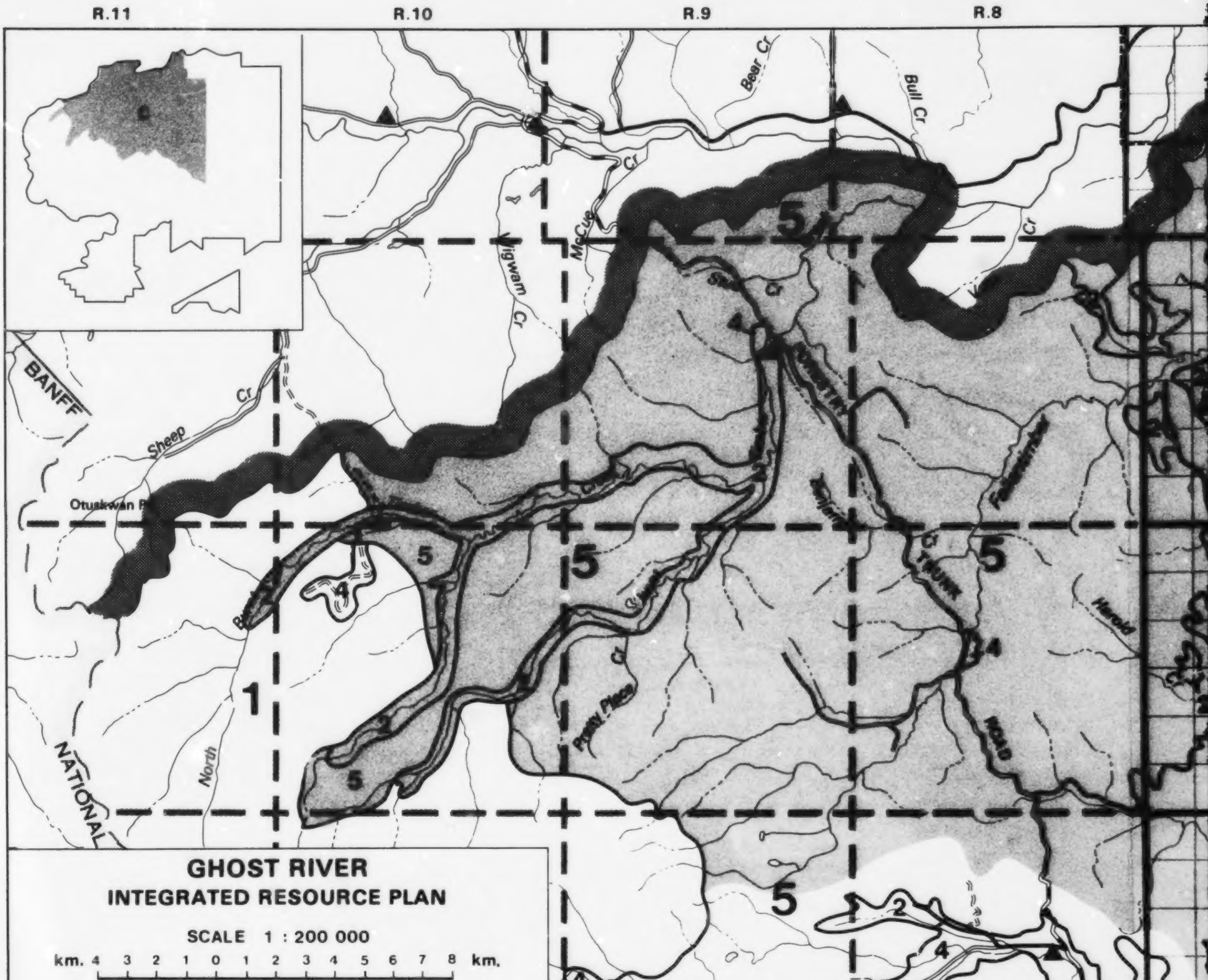
    - Land adjacent to the headwaters of South Ghost, North Ghost/ Waiparous, Burnt Timber, North Burnt Timber and their tributaries; Johnson Lakes; the unnamed lake at the head of Johnson Creek; South Ghost River and its tributaries; Old Fort Creek and its tributaries; Jura Creek; Exshaw Creek; headwaters of various tributaries to the Bow River; and land adjacent to South Ghost Lake.

    - Any major project outside the above areas involving large areas of land surface disturbance (i.e., coal mines, major roadways, etc.).

3.3 Fallentimber RMA

This RMA is mainly covered by the Subalpine Ecoregion with only a very small area of Boreal Foothills Ecoregion in the northeast portion (Figure 5). The area is made up mainly of foothills running northwest/southeast. The area has a pronounced crest-swale pattern with local relief of about 400 m (1300 ft.). Moraine covers most of the lower slopes and valleys. The subalpine forests are dominated by lodgepole pine and Engelmann/white spruce. The Boreal Foothills Ecoregion to the northeast is mainly composed of a mixture of lodgepole pine, white spruce and aspen.

The management intent of the Fallentimber RMA is to allow the use of the full range of available resources within a multiple use context.


R.11
R.10
R.9
R.8
GHOST RIVER
INTEGRATED RESOURCE PLAN
SCALE 1 : 200 000
km. 4 3 2 1 0 1 2 3 4 5 6 7 8 km.
mi. 2 1 0 1 2 3 4 mi.
West of the Fifth Meridian
RESOURCE MANAGEMENT AREA C
Fallentimber
Area C
REVISED EASTERN SLOPES ZONING
1-Prime Protection
2-Critical Wildlife
3-Special Use
4-General Recreation
5-Multiple Use
7-Industrial
Planning Area Boundary
Forest Reserve Boundary
Proposed Green Area Boundary
Patent Land
BANFF
NATIONAL
PARK
Sheep Cr
Otuskwan R
North
Wigwam Cr
McCue Cr
Bear Cr
Bull Cr
Cr
Fallentimber
Pretty Place Cr
TRUNK ROAD
Harold
Waiparous
Meadow
Lost Knife
Devils Head
Black Rock Mtn
Ghost River
Phantom Crag
Ghost Lakes
Orient Pt
Lesueur
FEDERAL
CROWN LAND
1
2
4
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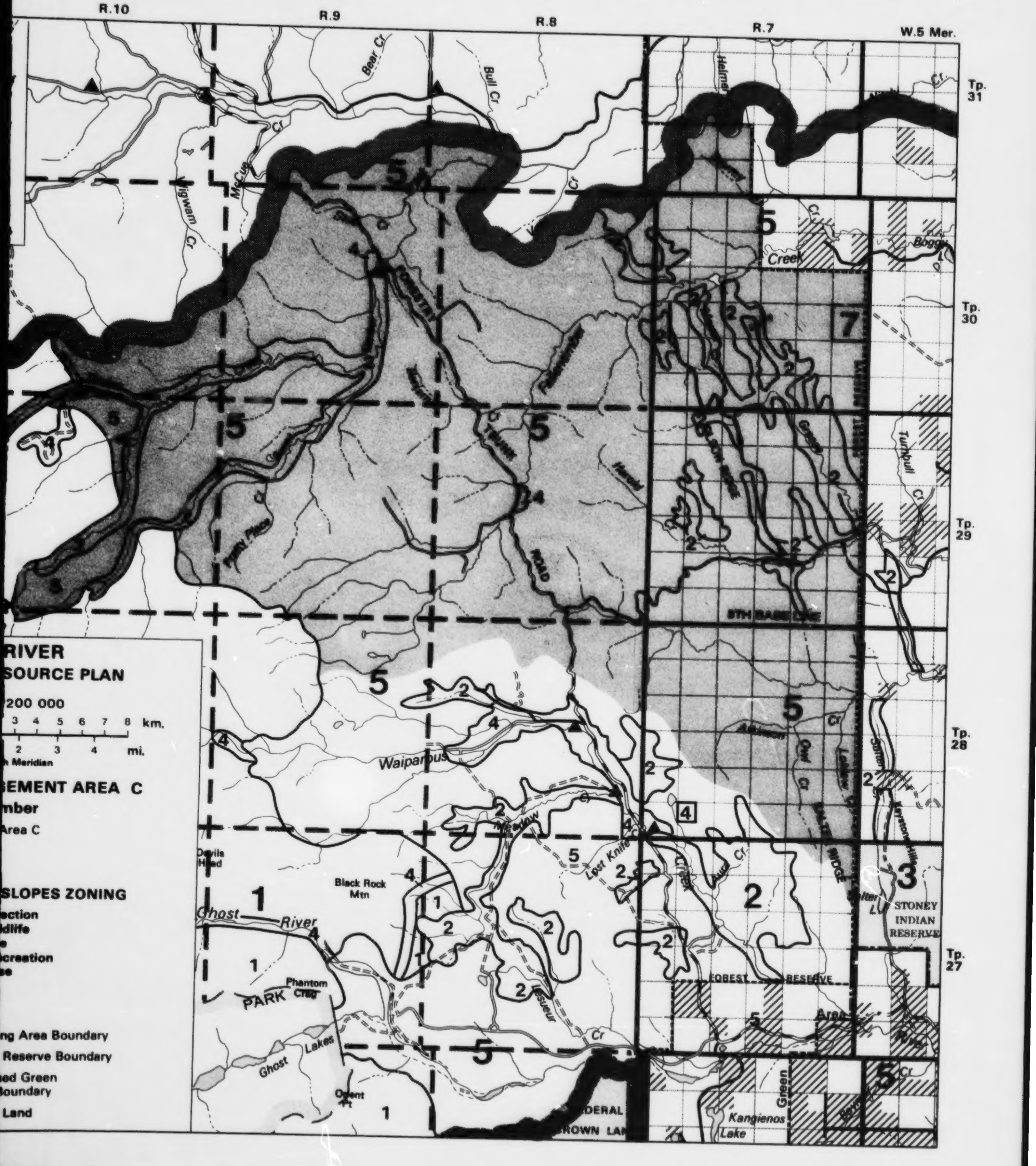
7

Fig.5 Fallentimber Resource Management Area


R.10
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W.5 Mer.
Tp. 31
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RIVER
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Creek
Boggy
Turnbull
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5TH BASE LINE
Cr
Owl
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Waiparous
Meadow
Cr
Devils Head
Black Rock Mtn
Ghost River
Phantom Crag
PARK
Ghost Lakes
Orient Pt
Lesueur
Lost Knife
Creek
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FOREST RESERVE
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Management Area

Watershed

The susceptibility of the area to erosion depends largely on steepness of slopes. The North Burnt Timber, Benjamin Creek and Harold Creek areas are particularly susceptible to erosion.

Objective

1. The broad watershed management objectives apply.

Guideline

1. There are 14 reclamation projects proposed in this RMA. They include reclamation of an estimated 32.1 km of seismic lines in the North Burnt Timber, Burnt Timber and the Burnt Timber/Benjamin Creek/Hunter Valley Road areas. There are also 12.3 km of access trails in the North Burnt Timber, Burnt Timber and Hunter Valley Road areas. Portions of the North Burnt Timber and Burnt Timber project overlap into the Upper Ghost RMA.

Wildlife

Winter concentrations of moose occur mainly in the area between Heifer Lake and Harold Creek. Winter concentrations of mule deer are widely distributed, but they are most likely to be found where small snow-free grassy areas are present on south and west-facing slopes especially along Fallentimber Creek. Grizzly bear are most abundant within the Upper Burnt Timber watershed.

The principal source of income from trapline operations comes from coyote, beaver, red squirrel, lynx and marten. Highly productive areas of marten occur in the upper headwaters of Fallentimber Creek and along the Little Red Deer River. Highly productive areas for beaver occur mostly along the Little Red Deer watershed.

Objectives

1. To increase mule deer population densities on suitable habitats from 0.4/km^2 to 4/km^2, and moose populations from 0.4/km^2 to 1.4/km^2.
2. To identify suitable ranges for elk and re-establish elk populations in these areas where feasible.
3. To identify ranges and re-establish fisher populations on currently vacant ranges.
4. To identify and maintain territories for grizzly bear, wolf and wolverine populations.
5. To maintain habitat for spruce grouse and enhance habitat for ruffed grouse.
6. To enhance habitat for mule deer, moose and elk.
7. To maintain adequate forage and thermal cover on current winter ranges for mule deer and moose.
8. To maintain migration corridors for ungulates along watercourses.
9. To maintain habitat for marten and red squirrel populations, and to maintain riparian habitats, particularly for beaver and mink.
10. To maintain the current harvest of at least one grizzly bear and two cougars per year on a sustained basis.
11. To maintain long-term minimal average harvest of 30 beaver, one lynx, 10 marten, 40 red squirrels and five coyotes on an annual sustained basis.

Guidelines

1. Timber management plans will be reviewed for opportunities to increase winter forage for wildlife, particularly on south-facing and southwest-facing slopes.
2. Range development plans will be reviewed to ensure browse and thermal/hiding cover is maintained, and to ensure forage is provided for wildlife.
3. Forage units (AUMs) for wildlife will be assessed to determine whether additional

forage is required and appropriate funding will be allocated as needed.

4. An assessment of mature and old-growth forest cover will be conducted to identify requirements to maintain certain wildlife populations such as red squirrel and marten populations.

5. Trapline damage or loss from industrial activity may be compensated through the Alberta Trappers Compensation Program where appropriate.

Fisheries

The Burnt Timber, Fallentimber and Little Red Deer drainage systems contain major sport fisheries. The North Burnt Timber and Burnt Timber creeks support populations of bull trout and mountain whitefish. Cutthroat trout have been introduced into this drainage over the past few years.

Present use for sport fishing is high where access is good, especially adjacent to Burnt Timber campground. The demand is generally greater than the present capability for consumptive use. Pinto Creek has been completely closed to fishing to protect important spawning areas for bull trout.

The Fallentimber system supports mountain whitefish, brown trout, brook trout and bull trout populations. To support the high demand for sport fishing, beaver ponds of this system were stocked with 23 850 brown trout and 13 740 eastern brook trout between 1957 and 1979.

The Little Red Deer system within this RMA supports brook trout, bull trout and brown trout. Where streams are readily accessible, they are heavily used for sport fishing.

Objectives

1. To maintain 200 gamefish (bull trout and mountain whitefish) per km in North Burnt Timber and Burnt Timber creeks.

2. To establish 300 cutthroat per km in North Burnt Timber and Burnt Timber creeks by 1990.

3. To maintain 780 mountain whitefish, 50 brown trout, 150 brook trout and 50 bull trout per km in the lower portions of Fallentimber Creek.

4. To maintain 200 brook trout per km in Benjamin Creek.

5. To maintain 100 gamefish per km in the Little Red Deer River and tributaries.

6. To protect spawning, rearing and overwintering areas in Pinto Creek (100 bull trout adults per km).

7. To protect other areas in Burnt Timber and North Burnt Timber creeks to be identified by 1995 that are important to cutthroat trout.

8. To protect spawning, rearing and overwintering areas for all gamefish in the Fallentimber and Grease creeks, and for brook trout in Benjamin Creek.

9. To maintain 10 000 brown trout in the Harold Creek beaver dams.

10. To identify and maintain migratory corridors for bull trout, cutthroat trout and mountain whitefish in North Burnt Timber Creek.

11. To identify and maintain migratory corridors for mountain whitefish, bull trout, brook trout and brown trout in Fallentimber Creek.

Guidelines

1. Surveys will be conducted by 1995 to identify crucial spawning and overwintering areas and to measure fish populations. Populations and habitat will be monitored every 10 years to determine if changes have occurred.

2. The amount of recreation provided by the various fisheries will be documented by 1995 and monitored every 10 years. The quantity of gamefish harvested will be measured every 10 years to ensure that continued optimum levels of use and harvests are provided.

3. Cutthroat trout will be allowed to expand their distribution and numbers to increase sport fishing recreation through regulations and habitat retention on various creeks in the North Burnt Timber and Burnt Timber drainage.

4. Recreational fishing opportunities will be broadened by introducing new species where appropriate (e.g., rainbow trout into all developed land-locked ponds).

5. Primitive access trails will be maintained or provided to stream and river fisheries and any lakes developed for sport fishing through development of an access management plan.

6. Recreational fishing opportunities will be increased by enhancing the primary production of lakes or streams where appropriate.

7. An information program will be provided to inform the public of sport fishing opportunities and also the limitations for supporting intensive recreation.

8. Fieldwork will be conducted every five years and appropriate public information will be provided to deliver an effective beaver dam stocking program.
9. The feasibility of introducing golden trout and arctic grayling to provide angling variety will be evaluated.

10. Lakes in the eastern portion of this RMA will be surveyed and enhanced where feasible to provide additional sport fishing opportunities and to reduce pressure on naturally reproducing populations.

Recreation

There are two formal Alberta Forest Service recreation areas located in this RMA, the Fallentimber and Burnt Timber. They provide facilities for 90 camping units and 58 picnic sites. There are an estimated 108 km of developed recreational trails in this RMA, including approximately 8 km for snowmobile only, 29 km for motorcycle only and 71 km for motorized, summer and winter use. The Fallentimber Forest Recreation Area provides staging areas for 96 km of trails. The remaining 12 km of trails in this RMA are accessible from staging areas provided from forest recreation areas in the Waiparous Creek RMA. The trails established in this RMA and the Waiparous Creek RMA are linked, providing a number of circuits for recreational off-highway vehicle use. The use of recreational off-highway vehicles also occurs throughout the RMA as the result of access created by resource development. The Forestry Trunk Road is important as a transportation route for recreationists.

At present, there is one commercial trail riding permittee operating in the Burnt Timber area of the RMA. Random camping is considered heavy and is generally concentrated in the Hunter Valley Road/ North Burnt Timber and Burnt Timber creeks area, Hunter Valley Road/ Fallentimber Creek area, Stud Creek east of the Forestry Trunk Road (SR 940), Stud Creek Road/Doc Mills Road area and the Benjamin Creek area.

Objective

1. To formalize commercial trail riding areas in the RMA and provide additional commercial trail riding opportunities.

2. To monitor recreational activities and provide additional facilities as demand requires.

Guidelines

1. Two Class II commercial trail riding areas will be recommended for the Burnt Timber area.

2. The long-range recreational development plan will identify areas for camping, picnicking and staging areas for recreation in this RMA. An area under reservation along the Harold Creek Road (N1/2 11-29-7 W5M), previously identified as having potential for a new forest recreation area, will be cancelled.

Access

The major access routes are the Forestry Trunk Road, the roads along Harold Creek and Olson

Ridge and roads in the Fallentimber/Burnt Timber areas. The entire RMA is covered by seismic trails, particularly the northeast portions. Access by recreational off-highway vehicles is concentrated in the Harold Creek area and west of the Forestry Trunk Road, but occurs throughout the RMA mainly as a result of resource development.

Objective

1. The broad access management objective applies.

Guidelines

1. In the Owl Creek/Salter Ridge area, recreational off-highway vehicle use will be limited to selected routes and trails. In the development and approval of the access management, public education and regulatory strategies under the Forests Act will be considered as implementation mechanisms where required to manage motorized recreational access in this portion of, or throughout, the RMA.

2. Recreational off-highway vehicle use will be monitored throughout the RMA to determine whether further mitigative measures are required.

Tourism

There are currently no existing tourism facility developments in this RMA. Non-resident visitor use will probably remain focused along the Forestry Trunk Road. Visitors from the surrounding region actively participating in outdoor activities, including OHV use, should also be encouraged to continue use of this area.

Objectives

1. To recognize that the Forestry Trunk Road corridor is the most realistic area for potential recreation and tourism development opportunities.

2. To maintain opportunities for snowmobiling and encourage additional associated developments.

Guideline

1. The opportunity for private sector development of commercial tourism facilities and services along the Forestry Trunk Road will be considered where appropriate on public land.

Timber

The timber resources in the Fallentimber RMA are predominantly in the mature and overmature age-classes. Of the commercial species, pine is more prevalent than spruce. Spruce occurs for the most part along the valley bottoms throughout the RMA.

The RMA contains timber quota spheres of interest held by Sunpine Forest Products Ltd. and Spray Lake Sawmills Ltd. Potential sources of timber available to the forest products companies include the reserve stands of cancelled timber licenses. The Fallentimber RMA is expected to accommodate an estimated 44 per cent of the anticipated commercial demand for forest products, within the planning area, over the next 20- to 30-year period (given commercial planning horizons of 20 years and timber management plan revisions at 10-year intervals).

Dwarf mistletoe occurs in the western and east-central portions of the RMA. Affected areas include North Burnt Timber, Burnt Timber, Nuisance, Fallentimber, Benjamin, Harold and Grease creeks and the Little Red Deer River.

The emphasis for forest management in this resource management area will include the provision and maintenance of a sustained yield land base capable of satisfying commercial demands for forest products.

Objectives

1. The broad timber management objectives apply.

Guidelines

1. Timber harvesting operations will be generally located in the Burnt Timber/North Burnt Timber Creek area,

Grease/Turnbull Creek area (30-5 W5), Fallentimber Creek area (30-8 W5) and south of the Little Red Deer River in the vicinity of Atkinson Creek.

Range

There are six range allotments within this RMA: Burnt Timber, Lower Fallentimber, Upper Fallentimber, Grease Creek, Harold Creek and Little Red Deer. The recommended carrying capacity in the RMA is estimated at 4431 animal unit months. For the most part, range use has decreased as the result of brush and aspen encroachment. Most of the allotments are now being managed under guidelines established through range management plans developed in the late 1950s and early 1960s. Generally, allotments have sites that are suitable for range improvement including brushlands dominated by bog birch and occasional bog birch/willow brushland sites. Most sites are flat with good access.

Objectives

1. To provide a rangeland that is capable of supporting an estimated 4431 animal unit months for domestic livestock.
2. To monitor and manage range resources with respect to escaped or abandoned horses.

Guidelines

1. An estimated 300 ha (741 ac.) has been identified as having potential for range improvement. A detailed assessment of range improvement requirements will be undertaken to more accurately determine the extent of range improvement projects required over the long term. Mechanical clearing and prescribed burns will be considered for brush encroachment control.
2. The western portion of the upper Fallentimber range allotment overlaps into the Upper Ghost RMA. The allotment boundary will be adjusted to comply with the intent of the RMA and the Eastern Slopes Policy (revised 1984).
3. The impact of escaped or abandoned horses along roads and on rangelands will be determined.

Minerals

Two natural gas fields (the Benjamin and Hunter Valley) and parts of two other fields (the Burnt Timber and Panther River) occur in this RMA. Production of natural gas from the seven producing wells was 225 million m^3 in 1984, while reserves were approximately 5.5 billion m^3. There are seven capped gas wells including two associated with the Panther River Field. Although natural gas production is limited by present markets, industry has dispositions covering 85 per cent of the RMA and exploration activity is continuing. This reflects the strong potential of the Mississippian Rundle Formation as well as the industry's interest in the less extensively explored Devonian and Cretaceous strata.

One gas plant with associated pipeline is located here and serves four gas fields in the planning area and beyond. About 400 tonnes per year of sulphur are produced at this plant. Substantial reserves of sulphur in the form of hydrogen sulphide gas are found in this RMA in the Burnt Timber and Panther River gas fields.

Objectives

1. To provide opportunities for the continued exploration and development of petroleum and natural gas within the Benjamin, Burnt Timber, Hunter Valley and Panther River gas fields as well as in other parts of the RMA.
2. To provide opportunities for exploration and development of coal resources within the RMA.

Guidelines

1. The broad mineral guidelines apply.

Historical Resources

The limited archaeological studies undertaken to date have demonstrated that the Fallentimber RMA contains considerable numbers of prehistoric archaeological sites and has high potential for additional occurrences. These sites represent camps and processing stations associated with the exploitation of game herds which were seasonally present in the area. Areas of potential consist of flat terraces above streams and rivers, lakeshores, the margins of wetland areas, and where bedrock, river gravels or materials suitable for stone tool manufacture are exposed. Prehistoric natives responsible for these sites frequented the area for more than 12 000 years.

Objectives

1. The broad historical resource objective applies.

Guidelines

1. The Archaeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review any proposed developments in the following areas of the RMA considered to be of high historical resource potential.
    - Land adjacent to North Burnt Timber Creek and its tributaries, Burnt Timber Creek and its tributaries, Nuisance Creek and its tributaries, Fallentimber Creek and its tributaries, Stormy Creek, Benjamin Creek, Mouse Creek, Grease Creek, Harold Creek and its tributaries, the Little Red Deer River and its tributaries, Atkinson Creek, Owl Creek, Loblaw Creek, Pinto Creek, and Heifer Lake.
    - Any major projects outside the above areas involving large areas of land surface disturbance (i.e., coal mines, major roadways, etc.).

3.4 Waiparous RMA

The Waiparous RMA (Figure 6) consists of the Subalpine and Montane ecoregions. Subalpine forests (lodgepole pine and Engelmann-white spruce) cover the northern one-third of the RMA. The area has a pronounced crest-swale pattern with local relief of 400 m (1300 ft.). The Montane Ecoregion covers the southern two-thirds of the area. The foothills of this RMA have been eroded by the Ghost River, forming extensive south-facing slopes. Slopes are moderate to very strong with grassland-forest on the south-facing slopes and forests on north-facing slopes. Douglas fir, aspen, lodgepole pine and white spruce are the dominant tree species in the Montane ecoregion.

The management intent for the Waiparous RMA is to allow the use of the full range of available resources within a multiple use context, with an emphasis on wildlife and intensive recreation in the area of Waiparous Creek.

Watershed

This RMA contains a large portion of the Waiparous drainage basin including Meadow, Lost Knife and Aura creeks. It also includes a part of the Ghost drainage including Lesueur Creek. Within these systems, Meadow Creek has been rated as being particularly sensitive to erosion. The Ghost River and Lesueur Creek flow through coarse alluvial outwash which is resistant to disturbance. The Ghost River is partially diverted into Lake Minnewanka.

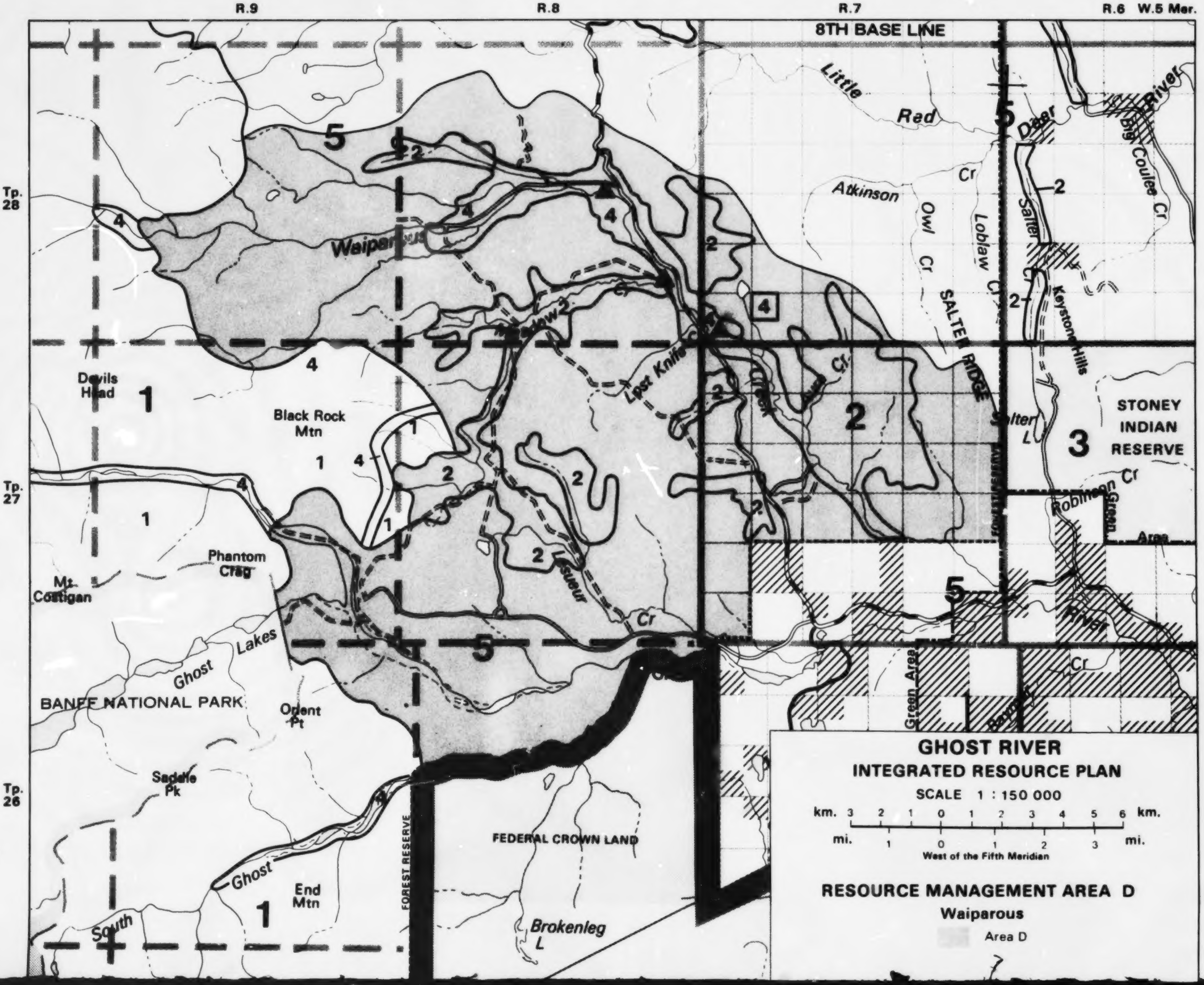
Objective

1. The broad watershed management objectives apply.

Guidelines

1. Reclamation projects proposed for the upper Waiparous Creek area southwest of Margaret Lake will be evaluated and undertaken subject to reclamation policies and funding according to availability and provincial priorities. The projects involve reclamation of an estimated 3.0 km of seismic line, and 2.6 km of access. These overlap into the Upper Ghost RMA.

2. Licensed diversions from the Ghost River to Lake Minnewanka for hydro-electric generation purposes will be maintained.


R.9
R.8
R.7
R.6 W.5 Mer.
8TH BASE LINE
Tp. 28
Tp. 27
Tp. 26
Little Red Deer River
Big Coulee Cr
Atkinson Cr
Owl Cr
Loblaw Cr
Salter Cr
Keystone Hills
SALTER RIDGE
Salter L
STONEY INDIAN RESERVE
Robinson Cr
Green Area
Waiparous
Meadow Cr
Lost Knife Creek
Lesueur Cr
Devils Head
Black Rock Mtn
Phantom Crag
Mt. Costigan
Ghost Lakes
BANFF NATIONAL PARK
Orient Pt
Saddle Pk
Ghost
South
End Mtn
FOREST RESERVE
FEDERAL CROWN LAND
Brokenleg L
River
GHOST RIVER
INTEGRATED RESOURCE PLAN
SCALE 1 : 150 000
km. 3 2 1 0 1 2 3 4 5 6 km.
mi. 1 0 1 2 3 mi.
West of the Fifth Meridian
RESOURCE MANAGEMENT AREA D
Waiparous
Area D
1
2
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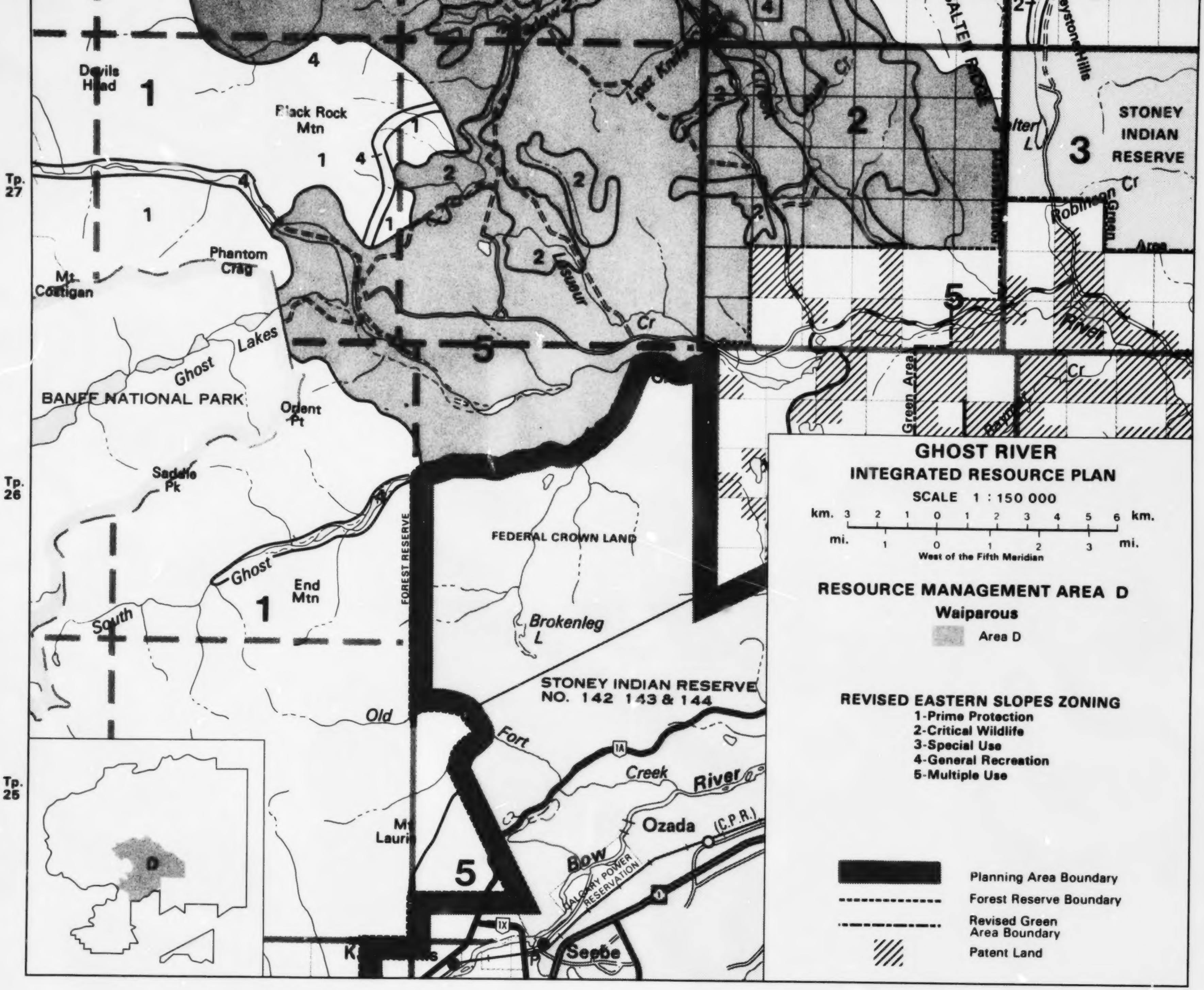

GHOST RIVER
INTEGRATED RESOURCE PLAN
SCALE 1 : 150 000
km. 3 2 1 0 1 2 3 4 5 6 km.
mi. 1 0 1 2 3 mi.
West of the Fifth Meridian
RESOURCE MANAGEMENT AREA D
Waiparous
Area D
REVISED EASTERN SLOPES ZONING
1-Prime Protection
2-Critical Wildlife
3-Special Use
4-General Recreation
5-Multiple Use
Planning Area Boundary
Forest Reserve Boundary
Revised Green Area Boundary
Patent Land
Tp. 27
Tp. 26
Tp. 25
Devils Head
Black Rock Mtn
Phantom Crag
Mt. Costigan
Ghost Lakes
BANFF NATIONAL PARK
Orient Pt
Saddle Pk
Ghost
South
End Mtn
Old Fort Creek
FOREST RESERVE
FEDERAL CROWN LAND
Brokenleg L
STONEY INDIAN RESERVE NO. 142 143 & 144
Bow River
Ozada
(C.P.R.)
CALGARY POWER RESERVATION
Seebe
Mt Laurie
Lesueur Cr
SALTER RIDGE
Salter L
STONEY INDIAN RESERVE
Robinson Cr
Green Area
River
D
1
2
3
4
5

Fig. 6 Waiparous Resource Management Area

Wildlife

Winter concentrations of moose are found mainly in shrubland areas near Meadow Creek, Cow Lake and Aura Lake. Winter concentrations of mule deer are less known but generally are found on south and west-facing grassy slopes along the Waiparous watershed. Traditional winter ranges for elk and mule deer are believed to have existed in the same habitat along the Ghost River and Lesueur Creek.

The principal source of income for trapline operations is from coyote, beaver, red squirrel, lynx and marten.

Objectives

1. To increase mule deer population densities on suitable habitats from $0.8/km^2$ to $4/km^2$, and moose population densities from $0.8/km^2$ to $1.4/km^2$.
2. To identify historical ranges for elk and re-establish elk populations on these areas where feasible.
3. To identify ranges and re-establish fisher populations on currently vacant ranges.
4. To enhance habitat for mule deer, moose and elk populations.
5. To ensure adequate forage and thermal cover is maintained on winter ranges for mule deer and moose, and maintain migration corridors for ungulates along watercourses.
6. To identify and maintain territories for grizzly bear, wolf and wolverine populations.
7. To maintain habitat for marten and red squirrel populations.
8. To maintain riparian habitats particularly for beaver and mink.
9. To maintain habitat for spruce grouse and enhance habitat for ruffed grouse.
10. To maintain long-term minimal average harvest levels of one marten, 300 red squirrels, eight coyotes, 11 beaver and one lynx on an annual sustained basis.

Guidelines

1. Timber harvest plans will be reviewed for opportunities to increase winter forage for wildlife, particularly on south or southwest-facing slopes, and to maximize forest diversity.
2. Range development plans will be reviewed to ensure browse and thermal/hiding cover is maintained, and to ensure forage is provided for wildlife.
3. Forage units (AUMs) for wildlife will be assessed to determine whether additional forage is required and appropriate funding will be allocated as required.
4. An assessment of mature and old-growth forest cover will be conducted to identify requirements for maintaining habitat for certain wildlife species such as red squirrel and marten populations.
5. Trapline damage or loss from industrial activity may be compensated for through the Alberta Trapping Compensation Program where appropriate.

Fisheries

The Ghost River and Waiparous, Meadow and Johnson creeks and Margaret Lake form the major sport fisheries in this RMA. Waiparous Creek drainage system supports cutthroat trout, brook trout, bull trout and mountain whitefish. Where access is good, present use for sport fishing is high, especially adjacent to Waiparous Creek campground. The demand is generally greater than the present capability for consumptive use. The South Ghost drainage system supports brook trout, bull trout and mountain whitefish.

Margaret Lake has good capabilities for supporting fish populations and has been stocked annually with brook and rainbow trout since 1963. The lake was stocked with 5000 brook trout in 1982. Cow (Whispering Pines)

Lake is incapable of overwintering fish but has potential to be a productive put-and-take fishery.

Objectives

1. To maintain 200 gamefish (bull trout, brook trout and mountain whitefish) per km in Ghost River.

2. To maintain 50-130 gamefish (bull trout, cutthroat trout, brook trout, brown trout and mountain whitefish) per km in Waiparous Creek.

3. To maintain 125-350 gamefish (cutthroat trout, brook trout, bull trout and mountain whitefish) per km in Meadow Creek.

4. To maintain 80-175 gamefish (cutthroat trout, brook trout, bull trout and mountain whitefish) per km in Johnson Creek.

5. To maintain brook trout in beaver dams along Lesueur Creek.

6. To maintain high water quality and protect habitat areas which are crucial for specific gamefish populations particularly spawning, rearing and overwintering areas for gamefish in Ghost River, Waiparous Creek, Meadow Creek, Johnson Creek and others identified through surveys.

7. To maintain stocking programs for Margaret Lake (5000 brook trout) and other lakes or beaver dams identified through surveys as having stocking potential.

Guidelines

1. Naturally reproducing gamefish populations will be expanded into various creeks where possible through regulations, habitat development and introduction, in order to increase sport fishing recreational opportunities.

2. Flow diversion will be monitored and reviewed to determine means to minimize impacts on gamefish populations along the Ghost River.

3. Recreational fishing opportunities will be broadened by introducing new species where appropriate (e.g., arctic grayling).

4. Recreational fishing opportunities will be increased by enhancing the primary production of lakes and streams where appropriate. Potential for the development of lakes to increase fishing opportunities will be reviewed annually.

5. The Alberta Fish and Wildlife Division will participate in the development of a management plan to maintain or provide primitive access to the streams with bull trout and cutthroat trout, and improve access and facilities at Margaret Lake.

6. An information program will be provided to inform the public of sport fishing opportunities and also limitations for supporting intensive recreation.

7. Alpine and subalpine lakes will be managed according to the Alberta High Mountain Lakes Fisheries Management Program. This program requires co-operation with the Alberta Forest Service to manage access to, and use around, these lakes.

8. Lakes will be surveyed and enhanced where feasible to increase sport fishing opportunities and reduce pressure on naturally reproducing populations.

9. Careful regulation of angling activities at high altitude lakes will be required to maintain the fragile ecosystem and the backcountry experience.

10. Fieldwork will be conducted and appropriate public information provided every five years to deliver an effective beaver dam stocking program.

11. Additional surveys will be conducted to identify crucial spawning and rearing areas, and to measure gamefish populations. Populations and habitat will be monitored every 10 years to determine if changes have occurred.

12. The amount of recreation provided by the various fisheries will be documented by 1995 and monitored every 10 years. The quantity of fish harvested will be measured every 10 years to ensure that continued optimum levels of use and harvests are provided.

Recreation

There are five formal recreation sites located in this RMA including the South Ghost, Waiparous Creek, Ghost Airstrip and North Ghost forest recreation areas and the Waiparous Valley Viewpoint. The forest recreation areas provide facilities for three group camps, 238 camping units, 30 picnic sites and staging areas for an estimated 89 km of developed trails (including approximately 2 km for snowmobiles only), and 87 km for motorized summer and winter use. The Waiparous Valley Viewpoint provides 10 picnic sites with a view of the valley to the west. All forest recreation areas have been upgraded to provincial standards. The Forestry Trunk Road provides the major access route for outdoor recreation.

There are four Class I commercial trail riding areas located in the RMA including the Ghost River, Blackrock, Lesueur Creek and Meadow Creek management areas. Random camping is considered heavy and is generally concentrated along the Ghost River/Lesueur Creek area, Johnson and Waiparous Creeks and along the TransAlta Utilities road west of Lesueur Creek.

Objective

1. To provide opportunities for formalized recreational use in accordance with current provincial standards.

Guidelines

1. Two water access points along Waiparous Creek and a group camp facility north of the existing Ghost Airstrip group camp will be considered for recreational development in accordance with long- range recreational development plans.
2. No changes to the present system of commercial trail riding management areas are anticipated at this time.

Access

The major access routes in the Waiparous RMA are the Forestry Trunk Road, Mockingbird Lookout Tower Road and the TransAlta Utilities Road. The use of recreational off-highway vehicles occurs throughout the RMA as a result of access constructed for resource development. Use is particularly high along the Waiparous, Meadow and Lesueur creeks and along the Ghost River. Motorized recreational use occurs in the vicinity of the Banff National Park boundary and has been known to occur, on occasion, within the park boundary where this is prohibited.

Objective

1. The broad access management objective applies.

Guideline

1. Existing trails and roads will be examined to determine and provide an access network suitable for recreational off-highway vehicle use through the development of an access management plan. In the development and approval of the access management plan, public education and regulatory strategies under the Forests Act will be considered as implementation mechanisms where required to manage recreational motorized access in this RMA.
2. Motorized recreational vehicle access in the Devil's Gap area near Banff National Park will be addressed through the access management plan.

Tourism

The Forestry Trunk Road traverses the RMA and is important for scenic touring opportunities. Currently there are no existing tourism facility developments in this RMA. Part of the Ghost District Snowmobile Area lies in the RMA and staging areas have been developed as a minimal service to visitors. There are five formal recreation sites and combined with the snowmobile area, the RMA receives a consistent level of visitor use. Additional services are needed to better accommodate existing and anticipated numbers of visitors. The lack of a dumping station at the Ghost Ranger District Information Centre and public access to recreational sites along the Ghost River and Waiparous Creek are immediate problems that must be examined.

Objectives

1. To recognize the Forestry Trunk Road as the focus along which intensive recreational development and tourism opportunities are most appropriate.
2. To provide opportunities for the private and public sectors to develop facilities which cater to the needs of the travelling public and users in the area.
3. To ensure recreational access to the Ghost River and Waiparous Creek is maintained or developed in appropriate locations.

Guidelines

1. The opportunity for private sector development of tourism and recreational facilities will be accommodated on public land where appropriate.
2. A dumping station should be constructed at the Ghost Ranger District Information Centre on the Forestry Trunk Road.

Range

There are four range allotments within this RMA: Ghost River, Aura Cache, Lesueur Creek and Devil's Head. The total recommended carrying capacity is estimated at 3426 animal unit months. For the most part, range use has decreased as the result of brush and aspen encroachment.

Objectives

1. To provide a rangeland that is capable of supporting an estimated 3426 animal unit months.
2. To monitor and manage range resources with respect to escaped or abandoned horses.

Guidelines

1. An estimated 500 ha (1236 ac.) have been identified as having potential for range improvement. A detailed assessment of range improvement requirements will be undertaken to more accurately determine the extent of range improvement projects required over the long term.
2. Portions of Ghost River and Devil's Head range allotments overlap into the Upper Ghost RMA. The allotment boundaries will be adjusted to comply with the intent of that RMA and the Eastern Slopes Policy (revised 1984).
3. The allocation and management of forage used by domestic livestock, escaped or abandoned horses and wildlife will be reviewed in the Ghost River and Aura Cache grazing allotment.
4. The impact of escaped or abandoned horses along roads and on rangelands will be determined.

Minerals

Almost half the Salter natural gas field, with approximate reserves of one billion m^3, falls within the RMA. There is no hydrocarbon production at present. Approximately 40 per cent of the RMA is under petroleum and natural gas disposition and is undergoing exploration.

Objective

1. To provide opportunities for the continued exploration and development of petroleum and natural gas, particularly that resource associated with the Salter gas field.

Guideline

1. The broad minerals guidelines apply.

Timber

The timber resources in the Waiparous Creek RMA are predominantly in the immature age-class as the result of fire in the early 1900s. Stands in the mature to overmature age-classes are found in the Waiparous/Meadow Creek, Waiparous/Cow Lake/Aura Creek and the Ghost River/Waiparous Creek areas. Of the commercial species pine is more prevalent than spruce and forms the majority of stands found in the younger age-classes. Spruce occurs, for the most part, along valley bottoms throughout the RMA.

The RMA contains portions of the timber quota held by Spray Lake Sawmills Ltd. The Waiparous Creek RMA is expected to accommodate an estimated 28 per cent of the anticipated commercial demand for forest products within the planning area over the next 25-year period, (given commercial planning horizons of 20 years and timber management plan revisions at 10-year intervals). Timber harvesting operations are anticipated in the early 1990s.

Dwarf mistletoe occurs in the northwestern and north-central portions of the RMA. Affected areas include the Margaret Lake, Waiparous/Meadow Creek and the Lost Knife/Waiparous Creek areas.

The emphasis for forest management in this resource management area will include the provision and maintenance of a sustained yield land base capable of satisfying commercial demands for forest products.

Objective

1. The broad timber management objectives apply.

Guideline

1. Timber harvesting operations are anticipated in the early 1990s and will generally be located north of Meadow Creek, in the Waiparous Creek drainage, in the Cow Lake/Aura Creek area and east of the Ghost Ranger Headquarters.

Historical Resources

Very limited historical resource inventory studies have taken place in the Waiparous RMA. Nevertheless, several sites have been identified and the potential for additional finds is considerable. Areas of potential are those suitable for encampments and other activities associated with exploitation of the seasonally present game herds in the area. These areas include flat terraces above rivers and streams (especially the Ghost River), lake-shores, margins of wetlands and exposures of bedrock or cobbles of materials suitable for stone tool manufacture. These sites represent the material remains of prehistoric hunting groups known to have frequented the area for over 12 000 years.

Objective

1. The broad historical resource objective applies.

Guidelines

1. The Archaeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review any proposed developments in the following areas of the RMA considered to be of high historical resource potential.

    - Land adjacent to Waiparous Creek and its tributaries, Meadow Creek and its tributaries, Lost Knife Creek, Aura Creek and land adjacent to its headwaters lake, Lesueur Creek and its tributaries, Ghost River and its tributaries, South Ghost River and its tributaries, and the unnamed lakes and their tributaries east of Mount Laurie.

    - Any major project outside the above areas involving large areas of land surface disturbance (i.e., coal mines, major roadways, etc.).

3.5 Little Red Deer RMA

The Little Red Deer RMA (Figure 7) consists mainly of the Boreal Lower Foothills and Montane ecoregions. The Boreal Foothills covers most of the RMA and includes gently rolling to very steep foothills. It is forested with mixtures of lodgepole pine, aspen and white spruce. The Montane ecoregion covers about 30 per cent of the RMA and consists of grassland-forest on steep south-facing slopes and forests on north-facing slopes.

The management intent for the Little Red Deer RMA is to allow for use of the full range of available resources within a multiple use context, with an emphasis on timber production and domestic livestock grazing in association with private land uses.

Watershed

This RMA contains portions of Turnbull Creek, Silver Creek, Grease Creek, Little Red Deer and Ghost River drainages. Turnbull Creek, Silver Creek and the Little Red Deer River all flow through fine textured material with the result that banks only have fair stability. Slopes are steeper in the southern portions of the RMA but erosion is a lesser problem because of the rocky nature of the terrain and stream channels.

Objective and Guideline

1. The broad objectives and guidelines apply.

Wildlife

Big game populations include mule deer, white-tailed deer and moose. There is little information on the distribution of these populations.

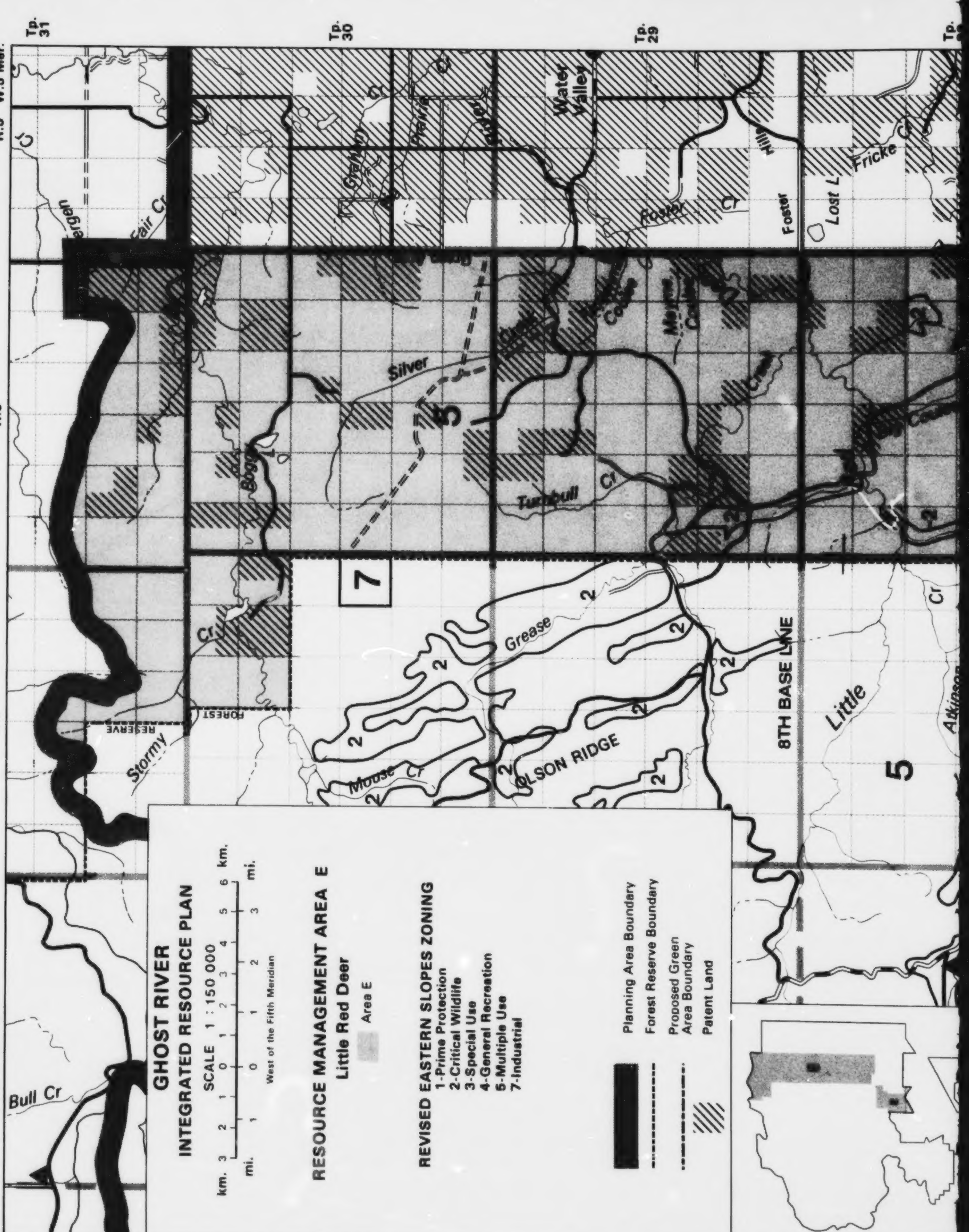
Principal sources of income from trapline operations are beaver, coyote, red squirrel, mink and marten. Areas near Stormy Creek, Boggy Lake, Turnbull Creek and Little Red Deer River are highly productive for marten and red squirrel. Riparian areas along Little Red Deer River and its tributaries, Fallentimber, Stormy and Silver creeks are highly productive for mink and beaver.

Objectives

1. To enhance moose population densities from 0.3/km^2 to 1.4/km^2 on suitable habitat, and to maintain mule deer population densities of 0.9/km^2 and white-tailed deer population densities of 0.3/km^2 on suitable habitat.
2. To maintain adequate forest cover for sustaining moose and deer, and to maintain migration corridors for ungulates along watercourses.
3. To maintain habitat for sustaining marten, red squirrel, lynx and coyote populations, and to maintain riparian habitats particularly for mink and beaver.
4. To maintain hunting opportunities for deer, moose, elk, black bear, wolf and ruffed grouse.
5. To maintain the current average annual harvest of 1.4 cougar per year on a sustained basis.
6. To maintain long term minimal annual harvest of 40 beaver, five marten, 150 red squirrels and 12 coyote on a sustained basis.

Guidelines

1. Co-operation will be sought from grazing lessees and landowners to provide access to hunters under the Use Respect Program. Ranchers may be compensated for shot livestock through the Shot Livestock Program.
2. Co-operation will be sought from grazing lessees and landowners to carry out conservation programs for retaining or enhancing habitat for wildlife.
3. Problem wildlife situations will be resolved through animal removal or control where appropriate through the Nuisance Wildlife and Beaver Flood Control programs.
4. Ranchers may be compensated for wildlife depredation through the Livestock Predation Indemnity Program.


GHOST RIVER
INTEGRATED RESOURCE PLAN
SCALE 1 : 150 000
km. 3 2 1 0 1 2 3 4 5 6 km.
mi. 2 1 0 1 2 3 mi.
West of the Fifth Meridian
RESOURCE MANAGEMENT AREA E
Little Red Deer
Area E
REVISED EASTERN SLOPES ZONING
1-Prime Protection
2-Critical Wildlife
3-Special Use
4-General Recreation
5-Multiple Use
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Planning Area Boundary
Forest Reserve Boundary
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R.8
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Grease
8TH BASE LINE
Little
Atkinson
Cr
Bogg
Silver
Turnbull Cr
Coulee
Creek
Water Valley
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Graham Cr
Fair Cr
Bergen
Foster Cr
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Lost L
Fricke Cr
Hill
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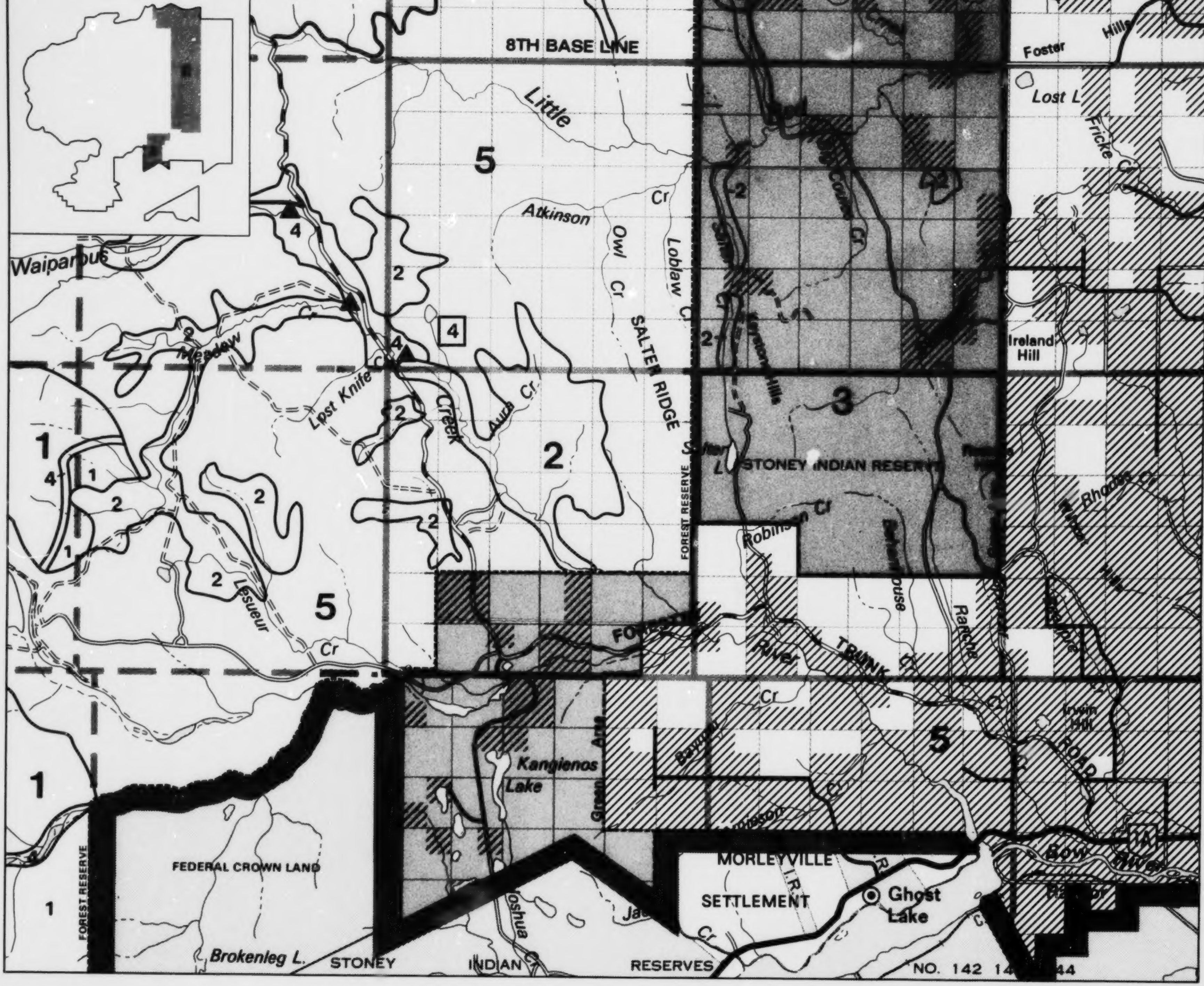
8TH BASE LINE
Foster
Hills
Lost L
Fricke Cr
Tp. 28
Tp. 27
Tp. 26
Little
5
Atkinson
Owl Cr
Loblaw Cr
SALTER RIDGE
Waiparous
Meadow
Lost Knife Cr
Creek
Aura Cr
4
2
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STONEY INDIAN RESERVE
Ireland Hill
Robinson Cr
Bighorse
Ranche
Rhodes Cr
FOREST RESERVE
FORESTRY TRUNK ROAD
River
Lesueur
Cr
Irwin Hill
Kangienos Lake
Green Area
Morleyville I.R.
MORLEYVILLE SETTLEMENT
Ghost Lake
Bow River
1A
FEDERAL CROWN LAND
Brokenleg L.
Joshua Cr
Jack Cr
STONEY INDIAN RESERVES
NO. 142 143 144

Fig.7 Little Red Deer Resource Management Area

5. Timber harvest plans will be reviewed for opportunities to increase winter forage for wildlife, particularly on south or southwest-facing slopes.

6. Range development plans will be reviewed to ensure that browse and thermal/hiding cover is maintained, and forage is provided for wildlife.

7. Forage units (AUMs) for wildlife will be assessed to determine whether additional forage is required and appropriate funding will be allocated as required.

8. An assessment of public land will be undertaken to identify lands with valuable wildlife resources. Measures will be recommended for reducing wildlife habitat loss to support this resource.

9. Trapline damage or loss due to industrial activity will be compensated for through the Alberta Trappers Compensation Program where appropriate.

Fisheries

The Little Red Deer RMA contains the following major sport fisheries: portions of the Ghost, Little Red Deer and Fallentimber plus important tributaries such as Grease and Turnbull creeks. Boggy and Kangienos lakes have low capabilities to support fish populations.

The Waiparous drainage system supports cutthroat trout, brook trout, bull trout, brown trout and mountain whitefish. The Fallentimber drainage system in this RMA supports bull trout, mountain whitefish, brook trout and brown trout. The Little Red Deer drainage system supports brown trout, bull trout, mountain whitefish and northern pike. Important spawning areas for brown trout have been identified in Turnbull Creek. Beaver ponds associated with Silver Creek were stocked with 2000 brook trout and 105 000 brown trout between 1955 and 1979.

Objectives

1. To maintain [illegible]00 gamefish per km in the Fallentimber Creek.

2. To maintain 100 gamefish per km in the Little Red Deer River.

3. To maintain high water quality to protect spawning, rearing and overwintering areas of gamefish populations in Fallentimber Creek, Little Red Deer River, Grease Creek, Ghost River and others identified through surveys.

4. To identify lakes or beaver dams with stocking potential to provide continued or additional sport fishing recreation.

5. To maintain Silver Creek beaver dams for stocking programs.

6. To identify and maintain migratory corridors for gamefish along the Fallentimber Creek and Little Red Deer and Ghost rivers.

7. To minimize impacts of agricultural activities adjacent to streams on the fisheries resource.

8. To create additional put-and-take fisheries to reduce pressure on naturally reproducing populations.

Guidelines

1. Through co-operation with other agencies and the public, means for reducing erosion and other impacts on fisheries resources will be implemented.

2. Field work will be conducted every five years and appropriate public information will be provided to deliver an effective beaver dam stocking program.

3. Public information programs will be provided to inform the public of specific management programs or problems.

4. Naturally reproducing gamefish populations will be expanded into various creeks, where possible, through regulations and habitat development and introduction programs to increase sport fishing opportunities.

5. Lakes will be surveyed and enhanced, where feasible, to increase sport fishing

opportunities and reduce pressures on naturally reproducing populations.

6. Additional surveys will be conducted by 1995 to identify crucial spawning and rearing areas and measure fish populations. Populations and habitat will be monitored every 10 years to determine if changes have occurred.

7. The amount of recreation provided by the various fisheries will be documented by 1995 and monitored every 10 years. The quantity of fish harvested will be measured to ensure that continued optimum levels of use and harvests are provided.

8. The Alberta Fish and Wildlife Division will participate in the development of an access management plan to maintain or provide primitive access trails to the stream and river fisheries, and to improve appropriate access to sport fisheries near recreational facilities. Access facilities will be developed under the public access program where appropriate.

Recreation

Alberta Recreation and Parks operates the Fallentimber provincial recreation area (SW 1-31-6 W5) with facilities for approximately 20 camping units. There are no forest recreation areas or formal trails within the Little Red Deer RMA. This RMA is, for the most part, under disposition for grazing lease or permit, or is patent land. Although scattered sections or quarter sections of vacant public land may be found, public sector recreational development is not anticipated at the present time.

In the southern portion of the RMA, in the vicinity of the Forestry Trunk Road (SR 940), a limited degree of commercial recreation occurs such as trail riding and hay and sleigh rides. The northern portion of the RMA (north of the Indian Reserve 142B) is used for commercial trail riding operations to varying degrees. There are currently four operators using the Green Area, with one operating under permit. The remaining three operators use the Green Area primarily for day trips, with their bases of operation on patent lands in this RMA or in the Water Valley RMA. Other tourism-related operations are located in the southern portion of this RMA.

Random camping is concentrated both north and south of the Ghost River in the southern portion of the RMA east of the Rocky Mountain Forest Reserve.

Objective

1. To provide the opportunity for the development of commercial trail riding opportunities within this RMA.

Guideline

1. Commercial trail riding opportunities will be encouraged, recognizing the commercial trail riding policy and ongoing land uses present. Permits may be issued to operators wishing to conduct commercial ventures in unclassified commercial trail riding management areas.

Access

The major access roads are the Forestry Trunk Road, Richards Road west of Kangienos Lake, the Keystone Lookout Road and the Harold Creek/Shell/Boggy Creek roads in the northeast portion of the RMA. The use of recreational off-highway vehicles occurs throughout the RMA as the result of access created by resource development.

Objective

1. The broad access management objective applies.

Guideline

1. Recreational off-highway vehicle use will be monitored throughout the RMA to determine whether future mitigative actions are required. In the interim, a "use respect" philosophy will be encouraged with regard to other land uses and an access management plan will be developed for this RMA.

Tourism

Limited information is available on the existing visitor use patterns in this RMA. It is likely that there is very little use because of the restricted access associated with the many grazing dispositions on public land.

Good access is only available into the southern section where it is traversed by the Forestry Trunk Road. There is limited access for recreational sites to the Ghost River from the Forestry Trunk Road. This area of the Ghost River receives seasonal use as a boat put-in area and should be upgraded to accommodate existing and potential public use.

Objective

1. To maintain public access to the Ghost River for recreational purposes.

Guideline

1. Alberta Tourism will provide input into the Ghost River access management plan developed by Alberta Forest Service.

Timber

The timber resources in the Little Red Deer RMA are predominantly in the mature age-class. Of the commercial species, pine is more prevalent than spruce which occurs mainly along the valley bottoms throughout the RMA.
The RMA contains portions of the timber quota held by Spray Lake Sawmills Ltd. Potential sources of timber available to forest products companies include the reserve stands of cancelled timber licenses. The Little Red Deer RMA is expected to accommodate an estimated 28 per cent of the anticipated demand for forest products within the planning area over the next 20 to 25 years (given commercial planning horizons of 20 years and timber management plan revisions at 10-year intervals). This includes both commercial and local requirements.

Local demand for forest products will be satisfied through the provision and maintenance of miscellaneous timber use (MTU) areas including Water Valley (Mayme Coulee area), Dogpound (west and south of Lost Lake), Fallentimber (north and east of Boggy Lake) and South Ghost (balance of the RMA south and west of the Stoney Indian Reserve 142B). The MTU areas will provide an estimated 17 500 m^3 (4078 mFbm) on an annual basis for use by local residents and small commercial operators. A Christmas tree cutting area has been established in the Boggy Lake area and is expected to supply local residents and residents of Calgary and vicinity for the next 10 to 15 years.

Dwarf mistletoe has been detected in the central portions of the RMA. Affected areas include Turnbull Creek, Grease Creek, Foster Hills and Swanson Creek.

The emphasis for forest management in this resource management area will include the provision and maintenance of a sustained yield land base capable of satisfying commercial and local demands for forest products.

Objective

1. The broad timber management objectives apply.

Guidelines

1. Timber harvesting operations will generally be located in the north-central portion of the RMA and the Salter Creek/Keystone Hills areas.

2. An estimated 17 500 m^3 (4078 mFbm) on an annual basis will be available for use by local residents and small commercial operators from the Water Valley, Dogpound, Fallentimber and South Ghost MTU areas. A portion of the South Ghost MTU area is located in the Water Valley RMA.

3. A Christmas tree cutting site will be maintained in the Boggy Lake area to supply local residents and residents in the vicinity of the planning area. The site is expected to satisfy demand for 10 to 15 years.

Range

There are 18 complete grazing leases and portions of six others covering approximately 23 660 ha (58 463 ac.) that support an estimated 12 722 animal unit months of grazing. In addition there are 10 grazing permits covering approximately 4381 ha (10 825 ac.) supporting an estimated 2274 animal unit months of grazing. Although rangelands are generally stable and in fair to good condition, range improvements will be required on a number of dispositions to maintain the forage base over the long term.

Objective

1. To provide a forage land base that is capable of supporting an estimated 12 722 animal unit months for grazing leases and 2274 animal unit months for grazing permits.

Guideline

1. The broad range management guidelines apply.

Minerals

Portions of five designated petroleum and natural gas fields occur here: the Jumpingpound West, Morley, Salter, Wildcat Hills and Winchell Coulee. Production of natural gas in 1984 was 350 million m^3 and reserves (based on only six productive wells) were estimated at 8.8 billion m^3. Most of the area is under petroleum and natural gas disposition. In addition, minerals beneath 15 per cent of the land are held in freehold.

Objectives

1. To provide opportunities for industry to explore new areas for petroleum and natural gas and to continue development of those portions of the Jumpingpound West, Morley, Salter, Wildcat Hills and Winchell Coulee gas fields within the RMA.

2. To provide opportunities for exploration and development of coal resources within the RMA.

Guideline

1. The broad minerals guidelines apply.

Historical Resources

Few historical resources inventory studies have taken place in the Little Red Deer RMA. Studies conducted have, however, identified a considerable number of sites located along the Little Red Deer River, Harold and Silver creeks. These and other data serve to indicate that the area has high potential for additional occurrences. Areas of potential are those suitable for campsites and other activities associated with exploitation of seasonally abundant game herds, especially bison in prehistoric times. These include flat terraces above streams and rivers, lakeshores, margins of wetland areas and exposures of bedrock and cobbles of materials suitable for stone tool manufacture. The sites represent the material remains of prehistoric hunters who frequented the region for over 12 000 years.

Objective

1. The broad historical resource objective applies.

Guidelines

1. The Archaeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review any proposed developments in the following areas of the RMA considered to be of high historical resource potential.

    - Land adjacent to Stormy Creek and the unnamed lake associated with this creek, Fallentimber Creek and its tributaries and associated lakes, lands surrounding Boggy Lake and the unnamed lake to the southwest, lands adjacent to Waterstreet Lake, Graham Creek and its tributaries, Big Prairie Creek and its tributaries, Silver Creek and its tributaries, Frozenman Coulee, Mayme Coulee, the Little Red Deer River and its tributaries, Grease Creek and its tributaries, Turnbull Creek, Harold Creek, Lower Atkinson Creek, Salter Creek and its tributaries, Big Coulee Creek and Swanson Creek.

- To the south of the Stoney Indian Reserve, lands adjacent to Robinson Creek and its tributaries, Ghost River and its tributaries, lands adjacent to Kangienos Lake and adjacent unnamed lakes and their tributaries, Baymoor Creek and its tributaries, Jamieson Creek and its tributaries, and Ranche Creek and its tributaries.
- Any major projects outside the above areas involving large areas or land surface disturbance (i.e., coal mines, major roadways, etc.).

3.6 Water Valley RMA

The Water Valley RMA (Figure 8) consists of the Boreal Foothills, Aspen Parkland and Montane ecoregions. Boreal Foothills forests of lodgepole pine, aspen and white spruce cover most the RMA. The Montane ecoregion covers about 20 per cent of the foothills portion. Steep south-facing slopes generally consist of grassland forest, with forests on the north-facing slopes. Portions of the Aspen Parkland ecoregion cover about 20 per cent of the RMA. Rough fescue dominates the grasslands with aspen and shrubs found on moist or north-facing sites. Black Chernozems are characteristic of the Aspen Parkland.

The management intent for the Water Valley RMA is to allow the use of the full range of available resources within a multiple use context, with an emphasis on domestic grazing and timber production in association with private land uses.

Watershed

Soils are finer textured and topography is more gently rolling than found throughout much of the planning area. The RMA is generally not sensitive to disturbances except on steeper slopes. Grand Valley Creek has been identified as having low channel stability.

Objectives

1. To ensure areas disturbed by land use activities are reclaimed in a satisfactory manner.

2. To maintain power generation capabilities on the Bow River.

Guideline

1. Areas disturbed by land use activities will be reclaimed within one year of initial disturbance and on a progressive basis where disturbance is long term.

Wildlife

Big game populations include moose, mule deer and white-tailed deer. Little is known about the distribution of mule deer and white-tailed deer. Moose populations are generally associated with the forested areas adjacent to the Ghost drainage in the north and the Little Jumpingpound drainage south of the Bow River corridor.

Little is known about the furbearer populations because most of the area is privately owned. Beaver and coyote populations are believed to be the major furbearers.

Objectives

1. To maintain mule deer and white-tailed deer population densities at 1.7/km^2 and 0.5/km^2 respectively, and enhance moose population densities from 0.3/km^2 to 1.4/km^2 on suitable habitat.
2. To minimize depredation problems associated with wildlife populations in fringe agricultural areas.
3. To maintain migration corridors for ungulates along watercourses.
4. To maintain riparian habitats and forest cover for wildlife populations.

Guidelines

1. Co-operation will be sought from grazing lessees and landowners to carry out conservation programs for retaining or enhancing habitat for wildlife.
2. Co-operation will be sought from grazing lessees and landowners to provide access to hunters through the Use Respect Program.

Ranchers may be compensated for shot livestock through the Shot Livestock Program as required.

3. Problem wildlife situations will be resolved through animal removal or control, where appropriate, through the Nuisance Wildlife and Beaver Flood Control program.
4. Ranchers may be compensated for wildlife depredation through the Livestock Predator and Indemnity Program as required.
5. Range development plans will be reviewed to ensure browse and thermal/hiding cover is maintained, and forage is provided for wildlife.
6. Forage units (AUMs) for wildlife will be assessed to determine whether additional forage is required and appropriate funding will be allocated as required.
7. An assessment of public land will be undertaken to identify lands with valuable wildlife resources and recommend measures to retain wildlife habitat within forest management areas and on rangelands.
8. Damage to crops and haystacks resulting from maintenance and enhancement of wildlife populations will be prevented through measures taken under the Fencing Assistance and Managing Problem Wildlife programs, and compensated for through the Crop Damage Compensation Program where appropriate.

Fisheries

Major sport fisheries are present in the Little Red Deer River, its tributaries and Dogpound Creek. The Little Red Deer River supports bull trout, mountain whitefish, brook trout, brown trout and northern pike. Between 1959 and 1967, 92 400 brown trout were stocked in the Dogpound system. The fisheries have declined in quality, however, mainly because of industrial and agricultural land uses affecting bank stability. Access to the public is also limited because of private ownership of land adjoining the creek. Spencer and Beaupre creeks have low capabilities to support fish populations. No information on fish populations is available for Grand Valley Creek, nor does there appear to be a demand for consumptive use. Winchell Lake is the only lake recently stocked. It was stocked with 6600 rainbow trout in 1982. Scott, Westover and Frederick lakes have low capability to support fish populations. The Ghost River supports cutthroat trout, brook trout, bull trout, brown trout and mountain whitefish.

Objectives

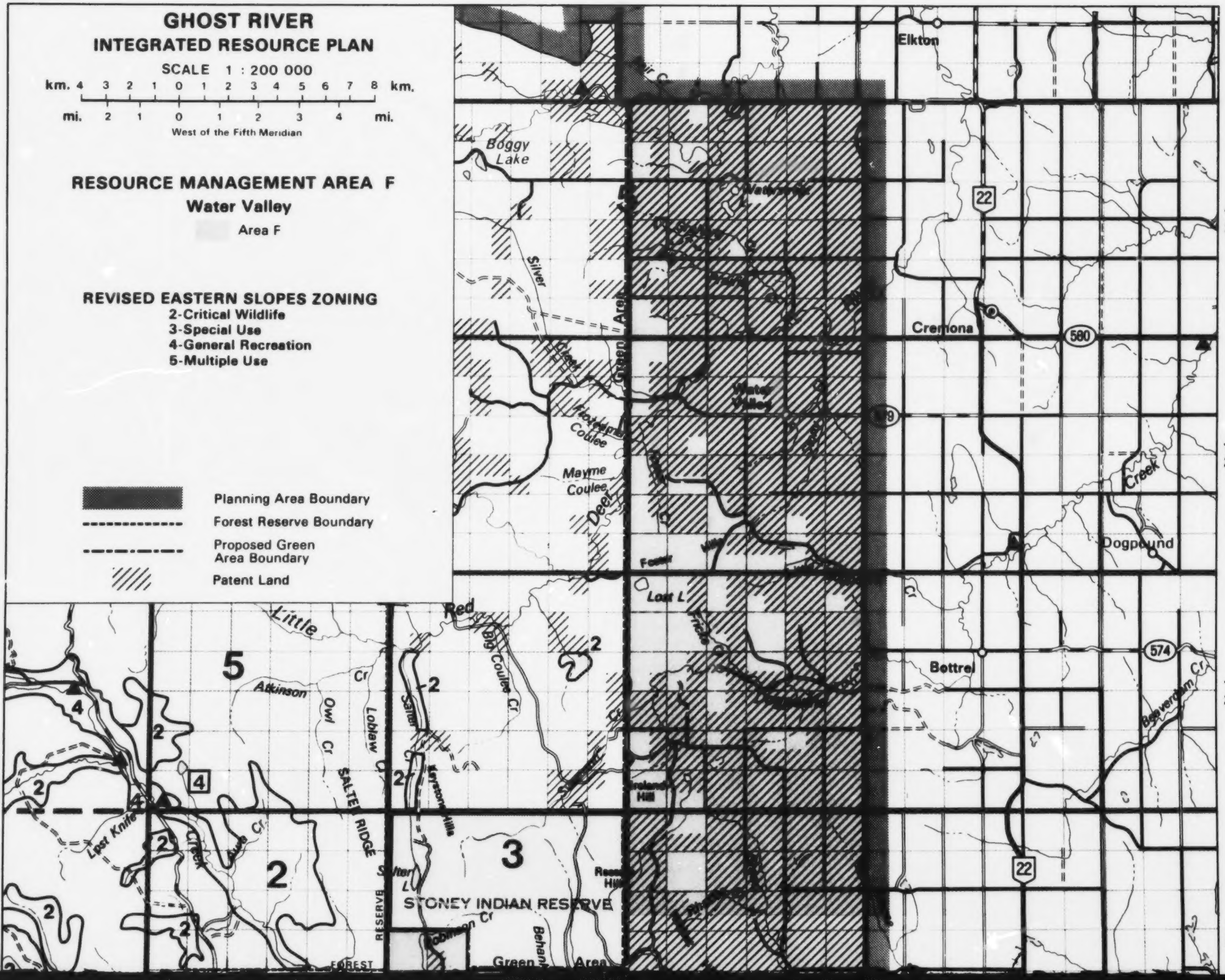
1. To maintain 100 gamefish per km in the Little Red Deer River.
2. To identify lakes and beaver ponds with stocking potential to provide new or additional sport fishing opportunities.
3. To maintain and stock the Winchell Lakes.
4. To identify and maintain migratory corridors for gamefish along the Little Red Deer and Ghost drainage systems.
5. To maintain or provide appropriate public access to sport fisheries.
6. To minimize impacts on the fisheries resource of agricultural activities adjacent to streams.

Guidelines

1. Basic facilities and access will be developed through the Alberta Fish and Wildlife public access program where there are no other means of implementation.
2. Through the co-operation of other agencies and the public, means for reducing bank erosion and other impacts on fisheries resources will be implemented.

Recreation

There are five recreational leases in the RMA. Although one site (SW 2-29-5 W5) has been identified as being suitable for cottage subdivision development, no development has been approved by the Municipal District of Rockyview.



GHOST RIVER
INTEGRATED RESOURCE PLAN

SCALE 1 : 200 000

West of the Fifth Meridian

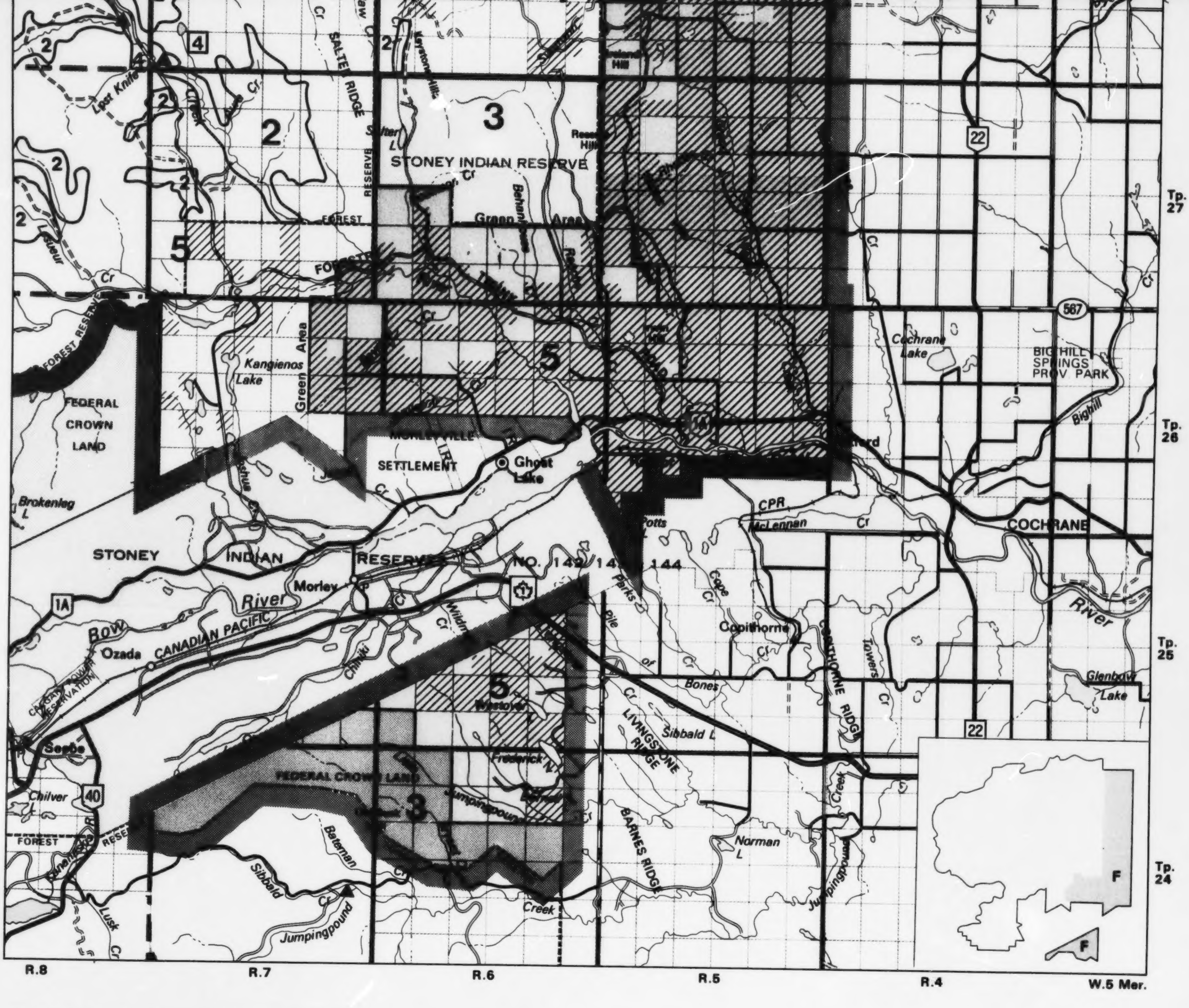
RESOURCE MANAGEMENT AREA F
Water Valley

Area F

REVISED EASTERN SLOPES ZONING
2-Critical Wildlife
3-Special Use
4-General Recreation
5-Multiple Use

Planning Area Boundary
Forest Reserve Boundary
Proposed Green Area Boundary
Patent Land

km. 4 3 2 1 0 1 2 3 4 5 6 7 8 km.
mi. 2 1 0 1 2 3 4 mi.
Elkton
Boggy Lake
Silver
Cremona
580
22
Water Valley
Green Area
Coulee
Mayme Coulee
Deer
Creek
Dogpound
Tp. 30
Tp. 29
Tp. 28
Tp. 27
Lost L
Red
Little
Big Coulee Cr
5
Atkinson
Cr
Owl Cr
Loblaw Cr
Salter
Keystone Hills
2
4
Lost Knife
Creek
SALTER RIDGE
3
STONEY INDIAN RESERVE
RESERVE
FOREST
Robinson Cr
Behan
Green Area
Bottrel
574
Beaverdam Cr
Hill



STONEY INDIAN RESERVE
SALTER RIDGE
Salter L
Green Area
Kangienos Lake
FEDERAL CROWN LAND
Brokenleg L
MORLEYVILLE SETTLEMENT
Ghost Lake
STONEY INDIAN RESERVES NO. 142, 143, 144
Morley
Bow River
CANADIAN PACIFIC
Ozada
Seebe
Chilver L
FOREST RESERVE
Lusk Cr
Sibbald
Bateman
Jumpingpound
Creek
FEDERAL CROWN LAND
Westover
Frederick L
LIVINGSTONE RIDGE
BARNES RIDGE
Sibbald L
Pile of Bones Cr
Parks
Cope Cr
Copithorne
COPITHORNE RIDGE
Towers Cr
Norman L
CPR
McLennan Cr
COCHRANE
River
Glenbow Lake
Cochrane Lake
BIG HILL SPRINGS PROV PARK
Bighill
Cr
Chiniki
Wildman Cr
Lost Knife Creek
Lesueur
Behan
Reserve Hill
1A
1
22
40
567
4
2
3
5
F
Tp. 27
Tp. 26
Tp. 25
Tp. 24
R.8
R.7
R.6
R.5
R.4
W.5 Mer.

Fig. 8 Water Valley Resource Management Area

Objectives

1. To support extensive recreational use.
2. To support intensive recreational use where it conforms with local municipal zoning.
3. To reduce conflicts between recreational and agricultural resource users.
4. To identify areas suitable for recreational cottage subdivision.

Guidelines

1. Intensive recreational use applications will be assessed for suitability as received.
2. Grazing lessees and permittees will be encouraged to allow extensive recreational use.

Access

Highways 1 and 1A and secondary roads 940, 968 and 579 provide the main access to the RMA along with a large number of improved and unimproved roads. The area also contains a large number of trails and seismic lines. Public access to grazing dispositions on public land for hunting, off-highway vehicle use and other recreation has led to conflicts between ranchers and recreationists. The departure of off-highway vehicles from established trails and road allowances has created range and terrain damage. The Use Respect Program continues to be an effective measure to elicit co-operation among users of public land. Further measures may, however, be required in high use areas.

Objective

1. The broad access management objective applies.

Guidelines

1. Posting of lands under disposition with "Use Respect" signs will be encouraged to reduce conflict between the extensive recreational users and the grazing lessee or permittee.
2. Grazing lessees and permittees will be requested to restrict off-highway vehicle use to existing trails.
3. An access management plan (selected routes) may be developed for selected lands in conjunction with grazing lessees, permittees and other agencies. These plans will be co-ordinated with the access management plan for the remainder of the planning area.

Tourism

The community of Water Valley provides limited tourism service facilities (i.e., gasoline station, grocery store). The larger communities, immediately west of the planning area, mainly service visitors to the area. There may be opportunity to expand Water Valley's role as a service centre. The Forestry Trunk Road (Secondary Road 940), Highway 1A and secondary roads 968 and 569 provide access to the RMA.

Objectives

1. To provide opportunities for the private sector to develop facilities which cater to the needs of the travelling public and users of the area.
2. To recognize the Forestry Trunk Road and Highway 1A as the prime focus along which intensive recreational development and tourism opportunities will occur.

Guideline

1. The opportunity for private sector development of tourism and recreational facilities will be accommodated on public land where appropriate.

Timber

Forest management in the Water Valley RMA has generally included the provision of forest products for local residents through the issuance of local or commercial timber permits. This is combined with the recognition of priority areas for range improvement. Reforestation on areas identified for range improvement may not be undertaken.

The timber resources on public land in the Water Valley RMA are generally in the overmature age-class and are managed as part of the BO2 forest management unit. Three sawmill sites (pt. SW6, pt NW5 and pt NE 6-29-5 W5) are located in the RMA. Of the commercial species, pine is more prevalent than spruce which is found in valley bottoms and on generally wetter sites. Dwarf mistletoe occurs in the central portion of the RMA. The affected areas include the Dogpound/Foster Hills and Swanson Hills areas.

All public land in the BO2 forest management unit portion of the planning area has been identified as having the potential for multiple use management, providing rangelands for domestic livestock, wildlife habitat and sustained yield forest production. An estimated 64 per cent of the area is forested and 29.5 per cent has potential for timber production.

The emphasis for forest management in most of this resource management area will include the provision of forest products for local residents. This will occur through the issuance of local and commercial timber permits that recognize priority areas for agricultural development. The resource management area will be managed on an integrated basis, providing domestic rangelands, wildlife habitat and forest products for local residents on a sustained yield basis.

Objective

1. To manage forested public lands on a sustained yield basis considering local requirements for forest products and agricultural development.

Guidelines

1. A more detailed assessment of lands capable of forest and forage production will be prepared with the co-operation of Alberta Forestry, Lands and Wildlife and the grazing disposition holders within the area. Forested public lands will be managed on a sustained yield basis to provide forest products for local residents, forage for domestic livestock and habitat for wildlife.

2. A portion of the South Ghost MTU area is located in this RMA. It will be managed as a contiguous unit of that portion of the MTU located in the Little Red Deer RMA.

Range

The RMA covers approximately 62 600 ha (154 700 ac.) of which about 11 330 ha (28 000 ac.) are public land. The majority of the public land is leased for grazing on which 6648 AUMs are provided. The grazing dispositions are divided into 37 grazing leases and seven grazing permits.

Objective

1. To maintain and, where possible, increase the number of animal unit months of grazing from the present 6648 AUMs.

Guidelines

1. The suitability of the land for range improvement will be assessed when applications for range improvement are submitted.

2. Assistance for range improvement will be provided under the Range Improvement Regulations existing at the time the application is submitted.

3. Range condition will be evaluated a maximum of every three years and also at renewal, to ensure that stocking rates are accurate and that the grazing lessees are following the stocking rate.

4. Grazing lessees will be requested to restrict off-highway vehicles to existing trails.

5. Public land will be assessed to identify lands capable of sustained yield forest production, tame forage production and wildlife habitat. These lands will be reserved from sale. This will allow continued rangeland use and sustained yield forest management to occur. An integrated approach to land and resource management will be employed. Approximately 40 per cent of the suitable area on each grazing lease will be designated for long-term tame forage production, while 60 per cent of the suitable area of each grazing lease will be designated for sustained yield forest management. The

designated acreage calculated from the percentage split will be based on those portions of the grazing lease which are suitable for sustaining either resource.

Minerals

Parts of the Winchell Coulee, Bottrel, Jumpingpound and Wildcat Hills natural gas fields are found here. Natural gas production in 1984 was 180 million m^3 from 12 wells and reserves were approximately 4.2 billion m^3. One gas plant (which produces gas and small amounts of sulphur from the Wildcat Hills field) and major oil and gas pipelines are located here.

Historical coal production amounting to about 30 000 tonnes was generated from several mines located mainly along the Bow River and at Silver Creek. This indicates that the coal-bearing strata are not restricted to two locations. Coal leases and freehold mineral rights underlie about half the RMA.

Four surface material leases are located in this RMA, three in the Winchell Lake area and one in the Waiparous Creek area.

Objectives

1. To provide opportunities for industry to develop the natural gas reserves of the four existing gas fields and to explore other areas of hydrocarbon potential.
2. To provide opportunities for the exploration and development of coal resources within the RMA.
3. To provide opportunities for development of surface materials where appropriate.

Guideline

1. To provide opportunities for development of surface materials where appropriate.

Guideline

1. The broad minerals guidelines apply.

Historical Resources

Very limited historical resource inventories have been undertaken in the Water Valley RMA. However, several sites have been recorded along the Little Red Deer River and in other locations. These and other data indicate that the area has high potential for additional occurrences. Areas of potential include those suitable for camps and other activities associated with exploitation of seasonally present big game herds, especially bison in prehistoric times. These include flat terraces above rivers and streams, lakeshores, margins of wetlands, glacial outwash channels and exposures of bedrock or cobbles of material suitable for stone tool manufacture. These sites represent the material remains of prehistoric hunters who frequented the area for over 12 000 years.

Objective

1. The broad historical resource management objectives apply.

Guideline

1. The Archaeological Survey of Alberta, Resource Management Section, will participate in the land use referral process to review any proposed developments in the following areas of the RMA considered to be of high historical resource potential.

    - Lands adjacent to Fallentimber Creek, its tributaries and associated unnamed lakes, Big Prairie Creek and its tributaries, the Little Red Deer River and its tributaries, Silver Creek, Stoney Creek and its tributaries. Winchell Coulee and Winchell Lake, Lost Lake, Dogpound Creek and its tributaries, Fricke Creek, Swanson Creek and its tributaries and associated lakes, Grand Valley Creek and its tributaries, Rhodes Creek, Kerfoot Creek, Beaupre Creek and its tributaries, Spencer Creek, Horse Creek and an associated unnamed lake (NW 35-27-5 W5).
    - Any major project outside the above areas involving large areas of land surface disturbance (i.e., coal mines, major roadways, etc.).

Ecological Resources

Ole Buck Mountain Natural Area (Section 5, pt. Section 7-25-6 W5) is located in the Westover Lake area south of Indian Reserves 142, 143 and 144 and Wildcat Island Natural Area (SW 15-26-3 W5, the island only) is located in the Bow River near Beaupre 753
Creek. One ecologically significant area is located near Winchell Lake south of Water Valley (Winchell Creek, NW 2-29-5 W5).

Objective

1. To protect unique or important ecological resources.

Guidelines

1. The natural resources of the Ole Buck Mountain Natural Area will be managed according to the Wilderness Areas, Ecological Reserves and Natural Areas Act.

2. Appropriate land use reservations or notations will be maintained or applied within potential Natural Areas to protect ecological resources.

4. IMPLICATIONS

Implications are major components of the plan which should be considered by decision-makers responsible for approving the plan, and by others who will use the plan or who are interested in its major effects. Implications can be negative or positive. This chapter also outlines private and public resource management and development opportunities.

4.1 General Implications

The Ghost River Sub-Regional Integrated Resource Plan provides a framework for resource management agencies, industry and the public to pursue opportunities for resource use in the planning area. In this manner, legitimate opportunities identified by the private or public sector will be accommodated where suitable.

The plan addresses a broad spectrum of natural resource management concerns. The refined Eastern Slopes zoning contributes to the geographic location of resource management objectives. The plan also contains positive future-oriented resource management objectives for each resource sector. These objectives provide targets toward which resource management agencies will work. The attainment of objectives will provide a net increase in social and economic benefits to users of the area. Eastern Slopes zoning, along with the general and specific objectives and guidelines in the plan, address watershed protection as a priority throughout the planning area.

The plan addresses the issue of recreational off-highway vehicle use and identifies the need for an access management plan to provide further direction for this activity. The conflict between off-highway vehicle users and other resource users will be addressed in the access management plan. Opportunities for additional off-highway vehicle trails will also be addressed.

Domestic grazing will be maintained at 1977 levels and there are opportunities for range improvements over the long term.

A forest land base is identified for sustained yield management purposes to satisfy present and/or future commercial and local demands for forest production and management to maintain healthy and stable forest conditions throughout the planning area. Forest protection services will also be maintained in the planning area. Proposed reclamation projects will be undertaken in the Upper Ghost, Fallentimber and Waiparous RMAs to protect watershed values subject to reclamation policies and funding according to availability, provincial priorities and an approved access management plan. Opportunities to increase coniferous timber use through quota allocation and an opportunity to use an estimated deciduous annual allowable cut of 6200 m^3 (1445 mFbm) are also identified.

This integrated resource plan provides an opportunity for the Archaeological Survey of Alberta, Resource Management Section, to participate in the referral system to review proposed developments involving land surface disturbances.

A range of recreational and tourism opportunities are accommodated in the plan which identifies potential areas for such activities by RMA. These opportunities include commercial trail riding, backcountry lodges and youth hostels, outfitting and guiding for hunting and hiking, snowmobiling, cross-country skiing and auto touring.

The plan provides an avenue for the inclusion of public and private sector tourism interests in an overall framework of public land management. This enables the Alberta government to better assist the tourism industry by focusing their efforts on identified areas of potential opportunity while minimizing possible conflict.

This plan provides the means to ensure that high fish and wildlife resource values are recognized during the development and management of resources. Co-operative planning of timber management and harvesting to incorporate wildlife requirements will help to increase overall benefits while minimizing any negative impacts on wildlife populations. Input into the management of rangelands will help minimize negative impacts on wildlife populations caused by conversion of aspen and shrublands to grassland and by concentrating cattle on primary rangeland. Increases in forage availability may be restricted by adherence to 1977 grazing levels and by limitations placed on converting coniferous vegetation to range. Forage availability may also be reduced if escaped or abandoned horse populations are not controlled. Input into access management will help ensure that reasonable access is provided to use wildlife resources in an acceptable manner. Input into other resource developments and activities will help protect fish and wildlife resources while providing for use of the area.

The increased economic opportunities to Albertans and non-residents from the proposed increases in fish and wildlife resources cannot be easily quantified. However, projected increases in fish and wildlife resources can promote economic opportunities for guides, outfitters, sporting goods businesses, guest ranches and communities that can provide accommodations, food and/or gas. Increased economic benefits to taxidermists and local butchers can be realized if more game is available for hunting. There also can be direct economic benefits to trappers and the fur industry if desirable furbearing populations can be increased to meet demands. Increases in wildlife will take into consideration 1977 domestic grazing levels; however, increases in domestic grazing above these levels could have a negative impact on wild ungulate populations, depending on the species in the area.

The economic implications of the plan for mineral exploration and development can be discussed in terms of general and specific influences. It is difficult, however, to quantify impacts. Mineral activity within the Ghost River area primarily involves the production of natural gas from existing wells. Currently there are no indications that significant expansion or intensification of activity will take place. While the plan does propose certain restrictions on mineral exploration and development, the overall impact would likely be limited. If a development application (subsequent to exploration on existing agreements) was rejected, applications pursuant to the Mineral Rights Compensation Regulations would be accepted. It is highly unlikely that the plan's implementation would have any effect on the pattern of employment generated by the minerals industry within the region. No new jobs would be directly created, and indirect employment would reflect the industry as a whole rather than any specific local influence.

4.2 Ghost Wilderness RMA

There are no zoning changes or changes in resource management direction in the area. Resource management will continue to adhere to the Wilderness Areas, Ecological Reserves and Natural Areas Act with the result that land and resource management are not anticipated to change in this RMA.

Fishing and hunting opportunities are not provided in this RMA. Fish populations and habitat will therefore not be inventoried. Wildlife populations will continue to be monitored, however.

The wilderness area status of the RMA precludes any tourism facility development. However, the wildland nature and scenery may be enjoyed through hiking. Motorized recreation and horse travel are not permitted in the RMA.

4.3 Upper Ghost RMA

This RMA is almost entirely Zone 1, Prime Protection. There is an area of Zone 5 east of Mt. Laurie and small areas of Zone 2 near Jura Creek and northeast of Harvie Heights. There are also Zone 4, General Recreation, corridors in the North Burnt Timber area along Waiparous Creek, the Ghost and South Ghost valleys and the Blackrock Mountain area. The major zoning changes occur in the most southern portions where land, originally Zone 2 in the Eastern Slopes Policy, has been changed to Zone 1 with the result that there is an overall increase in the area of Zone 1 in the RMA and planning area. Smaller Zone 1 changes have been undertaken in the Blackrock Mountain and Ghost River areas near Devil's Gap.

Opportunities for continued operation and development of the Kamenka, Canada Cement Lafarge and Genstar quarriable mineral leases are preserved by retaining these areas in Zone 2 and Zone 5. Additional leases may be considered in these zones. Surface access will be granted to develop the existing quarriable mineral leases. The expansion of Zone 1 in the RMA will result in the sterilization of some other quarriable resources. Petroleum and natural gas opportunities are also affected.

Zoning changes along the southern edge of the Upper Ghost RMA and on both sides of the border with Fallentimber and Waiparous RMAs will result in some areas of Prime Protection being expanded or reduced, depending on the area. Where Prime Protection has been reduced, there is added opportunity for access to explore for hydrocarbons, but in areas of expanded Prime Protection, access which is possible now may be refused. Areas of Prime Protection on top of petroleum and natural gas dispositions occur near the Panther River gas field. Dispositions here have approximately 2.5 sections of expanded Prime Protection in four separate areas, and approximately 0.5 sections removed from Prime Protection. All the zoning changes on top of petroleum and natural gas dispositions are areas of potential step-out activity. Further south in Townships 27 and 28, prime protection zoning has been expanded eastward into prospective natural gas areas which are not leased and which do not have step-out potential (as there are no producing wells nearby).

The plan provides for extensive non-motorized recreational opportunities throughout the RMA. Motorized recreational vehicle opportunities are provided in the Zone 4 corridors. Provisions for sanitation/salvage will allow for healthy and stable forest conditions with respect to long-term forest management. The completion of nine reclamation projects involving 31.6 km of seismic lines and trails will be subject to reclamation policies, an approved access management plan, funding availability and provincial priorities. Protection of watershed, wildlife and fisheries resources will be afforded following project completion.

The small expansion of Zone 1 has eliminated two recreational opportunities often associated with tourism (off-highway vehicle use and serviced camping) in the Upper Ghost RMA. Apart from outfitting, guiding and trail riding, private sector tourism opportunities are severely limited. This is particularly important considering the proximity of Canmore to the southwest part of the zone as it will limit Canmore's potential to expand its regional tourism opportunities.

Co-operative planning of access management will help ensure that wildlife populations can increase through increased security of highly sensitive ranges from disturbance. Initiation of projects to increase forage availability and forest diversity to enhance certain wildlife populations could provide additional benefits to the timber industry.

4.4 Fallentimber RMA

This area was zoned entirely as Zone 5, Multiple Use, with one section of Zone 7, Industrial, by the Eastern Slopes Policy. Numerous changes from Zone 5 to Zone 2 have been made by the Ghost River Sub-Regional Integrated Resource Plan. Zone 2, Critical Wildlife, now occurs along the North Burnt Timber, Burnt Timber and Fallentimber creeks and in the Olson Ridge-Harold Creek Area.

The recognition of tourism development opportunities along the Forestry Trunk Road may stimulate the private sector to develop the needed facilities on this potential auto touring route.

Fourteen reclamation projects involving 45 km of seismic lines and trails are proposed subject to reclamation policies, an approved access management plan, funding availability and provincial priorities. Some of these projects continue from those in the Upper Ghost RMA. Protection of watershed, wildlife and fisheries resources will be afforded upon completion.

Opportunities for commercial trail riding are identified. There is an opportunity for two Class II trail riding areas to be established. Management intent, objectives and guidelines allow for a full range of recreational activities.

Timber resource development and domestic grazing are accommodated through RMA objectives, guidelines and zoning. Both activities are compatible with the intent of this RMA.

A major implication of the change in zoning is the increased recognition of habitats crucial to fish and wildlife populations in this RMA. Plans for access management may be insufficient to protect fish and wildlife populations. Uncontrolled access in the Harold Creek area will continue to hamper efforts to minimize disturbance to deer and moose populations which use this crucial winter range. Until access can be controlled in areas required to maintain or enhance wildlife populations, hunting opportunities may have to be reduced.

Co-operative planning for reclamation projects will help restore lost productivity of wildlife habitat particularly if combined with appropriate access management measures. Reclamation projects proposed for this RMA will also help reduce sediment loads to streams and rivers, thereby enhancing fish habitat and productivity. This is especially so if they are combined with appropriate access management measures.

4.5 Waiparous RMA

The majority of this area was Zone 5 under the Eastern Slopes Policy, and most of the RMA remains Zone 5, Multiple Use. The plan increases Zone 2 in the Lesueur, Meadow, Waiparous and Aura Creek areas. In addition, areas of Zone 8, Facility, in the Waiparous Creek/Forestry Trunk Road area are changed to Zone 4, General Recreation.

The change in zoning in the Waiparous Creek/Forestry Trunk Road area from Zone 8 to Zone 4 may limit any tourism facility development in this area, but opportunities for private sector development of tourism and recreational facilities are identified in other portions of the RMA.

A full range of recreational opportunities is addressed in this RMA. Two water access points along Waiparous Creek and a group camp will be considered for development according to long-range recreational development plans.

Reclamation projects involving about 6 km of seismic lines and trails are proposed subject to reclamation policies, an approved access management plan, funding availability and provincial priorities. Projects are continuations of those in the Upper Ghost RMA. Protection of watershed, wildlife and fisheries will be afforded following the completion of these projects.

Timber resource development and domestic grazing are accommodated through objectives, guidelines and zoning. Both activities are compatible with the intent of the RMA.

The overall implication of the increase of Zone 2, Critical Wildlife, is the increased recognition of crucial habitats to wildlife populations in this RMA. Co-operative planning of access management and reclamation projects, and controlled development of tourist and recreation facilities will help ensure increased protection of fish and wildlife habitats, reduction in disturbance to wildlife populations and adequate provision for public access to view wildlife, hunt and/or fish.

4.6 Little Red Deer RMA

Most of this area was Zone 5 under the Eastern Slopes Policy, and most of the area remains Zone 5. Changes from Zone 5 to Zone 2 occur in the Salter Creek area north of the Stoney Indian Reserve. Land originally Zone 2 along the Ghost River and Waiparous Creek is changed to Zone 5. A section of land north of Stoney Indian Reserve 142B (originally Zone 3) is changed to Zone 5.

Motorized recreational vehicle access will be managed through the development of an access management plan to alleviate existing and potential problems, including conflicts with other resource uses.

Commercial and local demand for forest products will be accommodated through quota and MTU areas in this RMA.

Co-operative planning with government agencies, industry, lessees and landowners regarding land use development and activities will help ensure that conflicts with fish and wildlife resource management and use are resolved and maximum public benefits obtained.

The increase in Zone 5 will allow for a wider spectrum of recreational and tourism opportunities previously limited by Zone 2, such as facility development, serviced camping and off-highway vehicle use. Commercial trail riding opportunities will be encouraged.

4.7 Water Valley RMA

This RMA is zoned entirely as Zone 5, Multiple Use. This zoning emphasizes multiple resource use rather than single resource use. No lands were considered to have a priority for agricultural use (i.e., Zone 6). The White Area/Green Area boundary change (Figure 9) will add about 34 sections to the White Area of which nine sections are public land. This is equal to about 20 per cent of the public land base in the RMA. Five grazing leases covering 2312 ha (5713 ac.) and providing 1809 AUMs

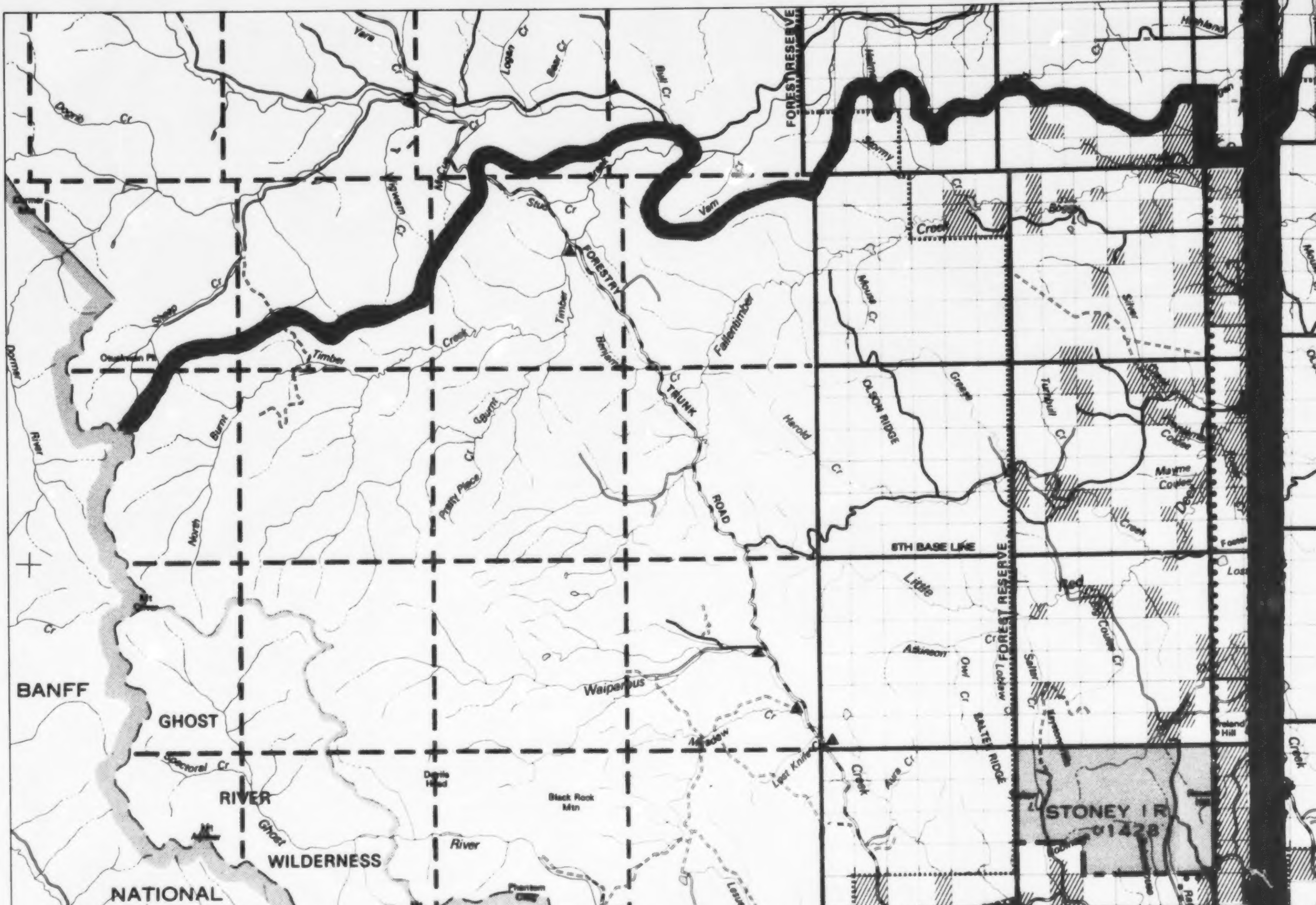

BANFF
NATIONAL
PARK
GHOST
RIVER
WILDERNESS
FAIRHOLME
RANGE
STONEY INDIAN RESERVE NO. 1
STONEY I.R. 142B
FEDERAL CROWN LAND
FEDERAL CROWN LAND
MORLEYVILLE SETTLEMENT
FOREST RESERVE
FOREST RESERVE
FOREST RESERVE
FOREST RESERVE
Green Area
FORESTRY TRUNK ROAD
5TH BASE LINE
7TH BASE LINE
OLSON RIDGE
SALTER RIDGE
Black Rock Mtn
Devils Head
Mt Inglismaldie
Mt Girouard
Mt Peechee
Princess Margaret Mtn
Mt Charles Stewart
End Mtn
Grotto Mtn
Pigeon Mountain
Sulphur Mtn
SUNDANCE PASS
Two Jack Lake
Johnson L
Anthracite
Banff
Exshaw
Gap L
Kangienos Lake
Lake Minnewanka
Waiparous
Ghost River
Bow River
Sheep Cr
Burnt Timber Cr
Fallentimber Cr
Little Red Deer River
Dogpound Cr
Lesueur Cr
Cascade R
R.10
R.9
R.8
R.7
R.6

Fig. 9 Revised Green Area Boundary

GHOST RIVER INTEGRATED RESOURCE PLAN

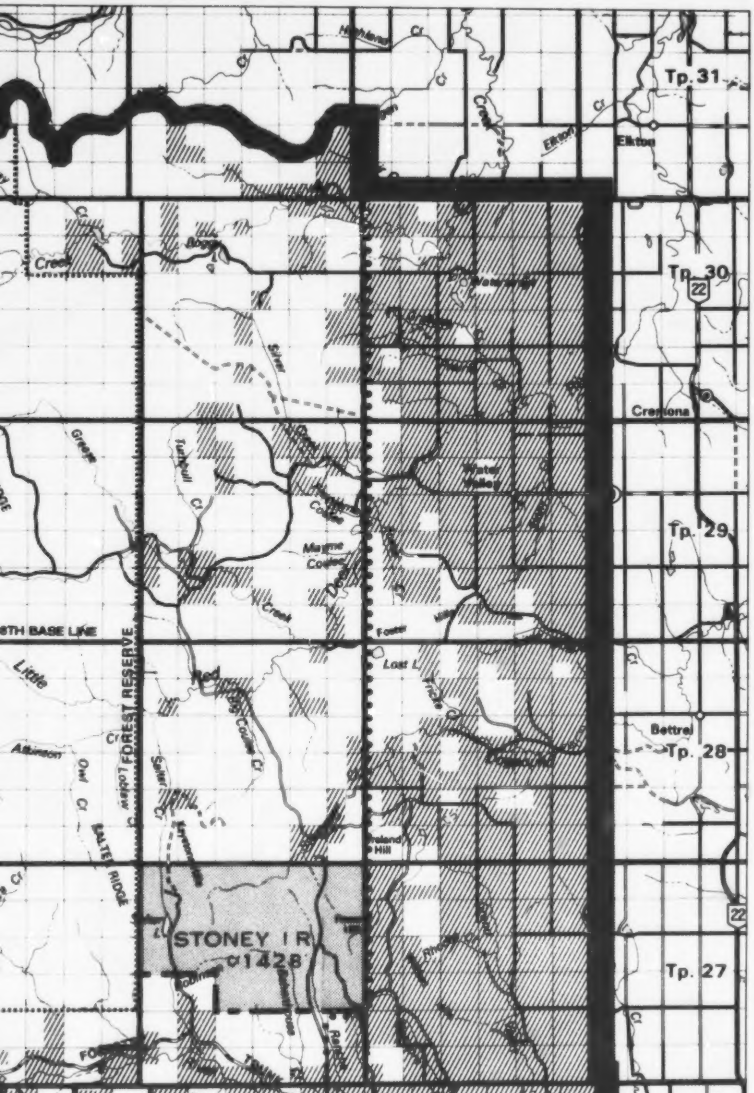
REVISED GREEN AREA BOUNDARY

SCALE 1:300 000

Kilometres 2 1 0 2 4 6 8 10 Kilometres

Miles 1 0 1 2 3 4 5 6 Miles

West of the Fifth Meridian



Tp. 31
Tp. 30
Tp. 29
Tp. 28
Tp. 27
Tp. 26
Tp. 25
Tp. 24
R.7
R.6
R.5
22
Elkton
Cremona
Water Valley
5TH BASE LINE
FOREST RESERVE
Little
Red
Lost L
Bottrel
Poland Hill
STONEY I R
142B
Green Area
Kangienos Lake
Cochrane Lake
MORLEY VILLE
SETTLEMENT
Ghost Lake
INDIAN RESERVE NO. 142 143 & 144
Caplthorne
Bones
Sibbald L
Westover
Frederick
FEDERAL CROWN LAND
FOREST RESERVE
BARNES RIDGE
Norman L

▬ Planning Area Boundary

········ Forest Reserve Boundary

— – — Revised Green Area Boundary

• • • • • • • Current Green Area Boundary

▨ Patent Land

and one farm development lease will be transferred to the White Area (NW 17-27-6 W5).

The South Ghost MTU will be managed as a contiguous unit with that portion of the MTU area located in the Little Red Deer RMA.

Maintaining the area as Zone 5 will allow for some development of tourist facilities and services in and around the resource management area. As a result, private sector opportunities will be given serious consideration by the regulatory agencies. One specific site (SW 2-29-5 W5) has been identified as having potential for cottage subdivision by private developers, but the County of Mountain View opposes subdivision of land in this area.

The identification of lands capable of sustained yield forest production, tame forage and wildlife production, combined with resource management plans and a no-sale reservation, will result in improved management of timber, range and wildlife resources over the long term. Increased livestock production and income to grazing lessees will occur through range improvement.

5. PLAN MANAGEMENT

General administrative procedures and mechanisms required for plan implementation, monitoring and amendment are outlined in this section. Detailed program and project implications resulting from this plan will be contained in an implementation document which will complement the plan.

5.1 General Administration

The Ghost River Sub-Regional Integrated Resource Plan will be implemented within the terms of appropriate legislation, regular programs and activities of the government, operational plans, specific developed projects, referral processes and administrative bodies. The revised zoning provides a means of processing applications for new public land dispositions within the planning area. Existing systems for referral and interdepartmental review will apply to the plan. Resources will continue to be administered by the departments responsible, in line with the approved zoning, resource management guidelines and any operational plans.

Government management agencies participating in the Ghost River Sub-Regional Integrated Resource Plan will have several responsibilities to ensure the effective delivery of this plan. It will be their responsibility to deal with conflicts or concerns with respect to implementation or interpretation of any of the plan's provisions. These responsibilities are outlined by subject area below.

Referral Systems: Participating government management agencies will ensure that existing referral systems of the Alberta government are adequate to encompass all affected or concerned agencies.

Plan Monitoring: The Ghost River Sub-Regional Integrated Resource Plan will be reviewed annually by the Eastern Slopes Regional Resource Management Committee to:

- assess the relevancy of the stated resource objectives in light of changing conditions;
- assess the resource management guidelines and referral procedures;
- assess agency operational plans to ensure their consistency with the Ghost River resource management area intents, objectives and guidelines; and
- recommend amendments to the Ghost River Sub-Regional Integrated Resource Plan and future actions required to maintain or promote government resource management activities in the planning area.

An annual report will be prepared by the Eastern Slopes Regional Resource Management Committee and will highlight the previous year's activity in the planning area. It will also indicate what accomplishments are anticipated in the planning area during the next year. The report may be deferred if there is a lack of activity or progress on government resource management objectives within the planning area.

A major plan review by the Eastern Slopes Region Regional Resource Management Committee will occur when the plan becomes outdated due to significant changes and new priorities including:

- a comprehensive assessment of all aspects of the plan, including but not limited to broad resource management objectives, land-use zoning, and resource management area boundaries and intents;
- a public review on the same basis as the public is involved in the development of new integrated resource plans; and
- a statement recommending amendments to the plan and future actions required to maintain or promote government resource management activities in the planning area.

5.2 Amendment Procedures

Changes to the planning area boundary, broad planning area resource management objectives, land-use zoning, and the resource management area boundaries and intents that would result in significant changes to the allowed resource uses or to priorities will require major amendment to the Ghost River Sub-Regional Integrated Resource Plan. An amendment to the plan may be required as a result of an annual review, government requests or a request from an individual, group or organization outside the government. Proposed amendments to the Ghost River Sub-Regional Integrated Resource Plan from outside the government should be made by formal application to the Assistant Deputy Minister of the Public Lands Division, Alberta Forestry, Lands and Wildlife*.

Opportunities for public review of proposed amendments to the Ghost River Sub-Regional Integrated Resource Plan will be provided before changes are approved by the government. A decision on requests to amend an integrated resource plan will be endorsed by the Minister of Forestry, Lands and Wildlife or his designate. Amendments which entail a major policy decision or a change to the basic intent of the plan may be forwarded by the Minister to Cabinet Committee for approval.

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*Guidelines for preparing requests for amendments to integrated resource plans are available upon request.

APPENDIX A

LEGISLATION AND ASSOCIATED DIRECTION

Numerous government directives must be considered while developing an integrated resource plan. The most significant directions to the Ghost River plan are discussed below.

A.1 A Policy for Resource Management of the Eastern Slopes Revised 1984

A Policy for Resource Management of the Eastern Slopes Revised 1984 (often cited as The Eastern Slope Policy) provides guidelines and objectives for integrated resource management and planning for the entire Eastern Slopes region including the Ghost River Planning Area. The Eastern Slopes Policy relies on regional land use zoning to designate large areas of land for varying degrees of protection, resource management and development. Table 1 lists the general intent for each of the following eight land use zones: 1) Prime Protection; 2) Critical Wildlife; 3) Special Use; 4) General Recreation; 5) Multiple Use; 6) Agriculture; 7) Industrial; and 8) Facility. The overriding principle for all the zones under A Policy for Resource Management of the Eastern Slopes Revised 1984 is to protect the valuable water resources of the Eastern Slopes and provide for public land and resource use in a manner consistent with the principles of conservation and environmental protection. The zoning does not apply to privately owned lands in the planning area. Table 2 defines a range of compatible activities to enact the intent of the eight land use zones. The compatible activities matrix and regional zoning found in the Eastern Slopes Policy provide interim direction until sub-regional integrated resource plans are completed.

The Ghost River Sub-Regional Integrated Resource Plan supersedes the zoning configuration set down in the Eastern Slopes Policy. As a result, the zones have been refined and the regional zoning found in the Eastern Slopes Policy no longer apply in the planning area. Figure 2 shows the revised zoning.

A.2 A Coal Development Policy for Alberta

A Coal Development Policy for Alberta, released in 1976, guides the exploration and development of coal resources throughout the province. Under the Coal Policy, exploration and development of coal deposits are permitted only under strict control to ensure environmental protection and satisfactory reclamation of any disturbed land. It classifies the province into four categories of suitability for different levels of exploration and development. The western portion of the planning area is Category 1 where no exploration or development is permitted. The north-central area is Category 2, where "limited exploration is desirable and may be permitted under strict control". Commercial development by surface mining "will not normally be considered at the present time" because "the preferred land or resource use remains to be determined". The eastern portion of the planning area is mostly Category 4 where "exploration may be permitted under strict control" and where commercial development "may be considered subject to proper assurances respecting protection of the environment and reclamation of disturbed land".

A.3 Fish and Wildlife Policy for Alberta

The Fish and Wildlife Policy for Alberta was approved by Cabinet and released in October 1982. This policy provides general direction regarding outdoor recreation, wildlife resources, fisheries resources and regulatory aspects of fish and wildlife use. The Fish and Wildlife Policy calls for preparation of comprehensive 10-year fish and wildlife resource plans. Meeting the objectives stated in this plan will achieve a portion of the overall fish and wildlife projected demand targets identified in the Status of the Fish and Wildlife Resource in Alberta (1984).

A.4 Commercial Trail Riding Policy

As an outcome of the Commercial Trail Riding Policy, "Commercial Trail Riding Regulations" were established for the Green Area in 1979 under the Public Lands Act. In part, these regulations establish three classes of trail ride management areas: single operator (class I), multiple operator (class II) and multiple operator day-use (class III).

A.5 Wilderness Areas, Ecological Reserves and Natural Areas Act

The Wilderness Areas, Ecological Reserves and Natural Areas Act (1984) consolidated the policy context for these three separate programs under one act. The Ghost River Wilderness Area, designated under the previous Wilderness Areas Act (1971), has been retained under the new legislation.

Ecological reserves are to be designated to protect representative landscapes of the province. The act provides the public with the opportunity to submit recommendations regarding wilderness areas and ecological reserves.

Natural areas, which are scattered throughout the province, were previously established under the Public Lands Act or were simply under reservation. These areas have a broader set of acceptable uses than ecological reserves or wilderness areas, including recreation, education and conservation.

APPENDIX B

GLOSSARY

Access Management Plan	A plan to manage recreational off-highway vehicle access in the entire planning area outside of the Ghost River Wilderness Area will be co-ordinated by the Bow Crow Forest, Alberta Forest Service, with participation from concerned government agencies, local authorities and the public. The plan will consist of a network of selected routes and trails suitable for recreational off-highway vehicle use. The access management plan will maintain a range of recreational OHV trails and address such items as types of vehicles, seasonal use of routes and trails, and limits to motorized recreational access in the area.
Animal Unit Month (AUM)	Measure of forage or feed required to maintain one (AUM) animal unit (a mature cow of 455 kg [1000 lbs]/ or equivalent) for 30 days (Resource Conservation Glossary, Soil Conservation Society of America, 1976).
Annual Allowable Cut (AAC)	Total volume of timber that may be harvested yearly under sustained yield management.
Auto Touring Route	Existing roads in the planning area which are either major travel corridors or travel through cultural or aesthetic features of sufficient significance to warrant greater visitor awareness, education and enjoyment. The development of suitable visitor information (e.g., interpretive brochures, road signage) and non-serviced road facilities such as pull-off areas and viewpoints are appropriate on these roadways.
Archaeological Resource	"...a work of man that (i) is primarily of value for its prehistoric, historic, cultural or scientific significance, and (ii) is or was buried or partially buried in land in Alberta or submerged beneath the surface of any watercourse or permanent body of water in Alberta". (Historic Resources Act, Revised Statute of Alberta [henceforth abbreviated RSA] 1978, H-8).
Commercial Development	All activities and infrastructure associated with the development of facilities for the use of the general public, including fixed-roof recreation accommodation, such as hunting, fishing, skiing and backcountry lodges; hotels, motels, apartments, townhouses and cottages; and commercial recreational activities involving facilities such as ski hills and golf courses, whether owned and/or operated by the private or public sector.
Commercial Timber Permit	Authorization for the permittee to harvest timber and which identifies lands on which timber may be harvested, the period of time within which the timber may be harvested, the actual timber to be harvested and the terms and conditions on which the permit is issued (Forest Act, RSA 1980, c. F-16).
Consumptive Use	Those uses of resources that reduce the supply such as hunting, logging and mining (Wildland Planning Glossary, USDA Forest Service).

	Conversely, non-consumptive use does not reduce the supply (e.g., wildlife viewing.)
Country Vacation Farm or Vacation Ranch	A working farm or ranch which provides overnight accommodation for a minimum of four guests and offers organized participation in, and/or observation of, actual farm/ranch activities as part of the vacation experience.
Crown Land	Land titled to her Majesty the Queen in the right of the Province of Alberta.
Domestic Grazing	All activities associated with the production and use of forage for domestic livestock.
Extirpated Species	Wildlife species no longer found in their historical ranges but are not extinct.
Eastern Slopes Zones	The Eastern Slopes Policy document, first issued in 1977, identified three policy areas and eight corresponding regional land use zones: **A. Protection** - 1) Prime Protection, 2) Critical Wildlife and 3) Special Use; **B. Resource Management** - 4) General Recreation, 5) Multiple Use and 6) Agriculture; **C. Development** - 7) Industrial and 8) Facility. The primary objectives of regional zoning are: a) to provide resource management intents for broad units of land; b) to recognize opportunities and allocate resources at a broader regional scale; c) to provide background and direction for more detailed integrated resource planning; and d) as a consequence of the latter, to resolve land use conflicts (A Policy for Resource Management of the Eastern Slopes Revised 1984, Alberta 1984).
Fixed Roof Accommodation	Permanent accommodation other than campgrounds (e.g., hotels, motels, backcountry lodges or rental cabins).
Flow Regime	Distribution of streamflow over time (usually one year).
Forest Land Base	Land considered to be capable of contributing to the social and economic welfare of the province if it is predominantly maintained under forest management. Includes provisions for production of wood and wood products on a sustained yield basis, wildlife, grazing, recreation, and protection and production of water supplies.
Forest Management Unit (FMU)	An area of forest land designated by the minister for the purposes of administration (Forest Act, RSA 1980, c. F-16). The annual allowable cut of timber is determined with respect to forest management unit boundaries.
Forest Reserve	Approximately two-thirds of the Ghost River Planning Area is within the Rocky Mountain Forest Reserve. It includes lands in the Province of Alberta set aside by the Forest Reserves Act (1964) primarily to maintain good watershed conditions and obtain high water yields. This is done through the management of vegetative cover as an insurance against soil erosion and to minimize the danger of flash floods. Other

	benefits of the forest reserve are timber production, grazing, recreational use and use of fish and wildlife (Alberta's Forests, Alberta 1971).
Grazing Allotment	Synonymous with range allotment. A rangeland area based on natural or watershed boundaries designated for use by a prescribed number of cattle, managed by permittee(s) and directed by a range management plan prepared by the Alberta Forest Service (Range Management Section, Forest Land Use Branch).
Grazing Lease	Crown grazing-land disposition issued on an area of land which is suitable for supporting livestock. Leases are legislated under the Public Lands Act (RSA 1980, P-30) and are issued for public lands in the Green Area and White Area, outside the Rocky Mountain Forest Reserve, usually for a term of five or 10 years. The lease allows the lessee exclusive use of the land for grazing (Range Management Section, Forest Land Use Branch, Alberta Forest Service).
Grazing Permit	Official written permission to graze a specific number, kind and class of livestock for a specific period on a defined range allotment (Wildland Planning Glossary, USDA, Forest Service, 1976). Green Area: Permits are issued on an annual basis by the forest superintendent for the Green Area, pending the preference quota for each permittee and the available animal unit months (AUM) in each allotment. Grazing permits are legislated pursuant to the Forest Reserves Act (RSA 1980, F-15) (Range Management Section, Forest Land Use Branch, Alberta Forest Service). White Area: Grazing permits are issued on an annual basis, frequently on lands under reservation for another purpose or on lands for which it is not considered in the public interest to grant long-term dispositions. Grazing permits are legislated through Alberta Regulation 64/70 found under the Public Lands Act (RSA 1980, P-30).
Green Area	The Green Area, established in 1948 by Alberta Order-in-Council 213/48, consists of the non-settled forest lands and covers 53 per cent of the total area of the Province of Alberta. Public lands in the Green Area are managed primarily for forest production, watershed protection, fish and wildlife management, recreation and other multiple uses. Permanent settlement, except on legally subdivided lands, as well as agricultural uses other than grazing, have been excluded (Alberta Public Lands, Alberta, 1981a).
Historical Resource	Any work of nature or of man that is primarily of value for its palaeontological, archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest (Historical Resource Act, RSA 1979, H-8).
Historical Resource Impact Assessment	Projects normally conducted when development programs are anticipated to cause ground surface disturbance within the Province of Alberta. The purposes of such projects are to locate all historical resource sites to be affected by the development, evaluate the worth

	of such sites relative to Alberta historical resources as a whole, determine the nature of the impact of the development on individual sites and propose conservation procedures for those sites to be affected by the development. (Archaeological Survey of Alberta).
Historic Site	"...any site which includes or is comprised of an historical resource of an immovable nature or which cannot be disassociated from its context without destroying some or all of its value as an historical resource and includes a prehistoric, historic or natural site or structure." (Historic Resources Act, RSA 1979, H-8).
Integrated Resource Management (IRM)	Co-ordinated, interagency approach to comprehensive planning and shared decision-making in the overall management of diverse natural resources and their use. A basic principle of IRM is consultation before action; concerned agencies consult and discuss implications of possible courses of action so mutually acceptable solutions can be determined. Integrated resource management is a comprehensive, co-ordinated approach to planning and administering Alberta's resources as efficiently as possible, with the goal of producing the greatest benefits for present and future Albertans (Resource Planning Branch; Alberta Forestry, Lands and Wildlife).
Miscellaneous Timber Unit Area	Land set aside within a forest management unit to provide timber for local use. The area represents a portion of the annual allowable cut for the total forest management unit. Timber is allocated for local use through Local Timber or Commercial Timber permits.
Multiple Use	The use of land for more than one purpose (e.g., watershed management, timber production, domestic livestock grazing, wildlife production and recreational and industrial uses). A combination of uses may not necessarily yield the highest economic return or the greatest unit output considering the optimal use of available resources (adapted from Resource Conservation Glossary, 3rd Edition. Soil Conservation Society of America, 1976).
Off-Highway Vehicle	Motorized vehicle used for cross-country travel on land, water or snow, including four-wheel-drive vehicles, motorcycles, track vehicles and snow vehicles, but not motorboats (Off-Highway Vehicle Act, RSA 1980, c. 0-4). In the context of this plan, off-highway vehicles do not include helicopters.
Operational Plans	Provincial government resource management agencies prepare long- and short-range plans for the management of resources under their jurisdiction. These specific resource management plans generally deal exclusively with the resource(s) for which a management responsibility has been delegated. Wildlife management plans, timber management plans, range management plans and recreational management plans are examples.
Palaeontological Resource	"...a work of nature consisting of or containing evidence of extinct multicellular beings and includes those works or classes of works of nature designated by the regulations as palaeontological resources." (Historic Resources Act, RSA 1979, H-8).

Point Source Of Sedimentation	Term used to denote where sedimentation occurs as a result of land use which is in direct contact with the stream (e.g., road crossings). Conversely, a non-point source of sedimentation is used to denote sedimentation arising from a land use within the watershed but not adjacent to the stream (e.g., timber harvest cutblocks may change the quantity and timing of run-off which may lead to higher flows and erosion of stream banks downstream).
Preliminary Disclosure	Means by which both the private and public sectors may make major development proposals, on a confidential basis, to government. Through preliminary review, the government may indicate whether it has objections "in principle" to a proposal's form, timing, location or any other essential feature. No objection in principle of a major development proposal (resulting from preliminary disclosure) constitutes approval for the filing of necessary applications and documents as required under controlling legislation (A Policy for Resource Management of the Eastern Slopes Revised 1984 [Alberta, 1984]).
Primary Range	An area which animals prefer to use and over which they will graze when management is limited (Wildland Planning Glossary, USDA, Forest Service). The primary range will be overused before the secondary range is used when animals are allowed to shift for themselves (A Glossary of Terms Used in Range Management, Society for Range Management, 1974).
Productive Geological Structure	Types of geological situations which contain economically viable amounts of naturally occurring minerals such as petroleum and natural gas (e.g., traps), coal (e.g., seam formations) and metals (e.g., igneous intrusives).
Program	Plan of procedure; a schedule or system under which action may be taken toward a desired goal.
Project	Specific plan or design intended to meet desired program goals. A work item definable in terms of plans and specifications.
Public Land	Land which is under the administration of the Minister of Forestry, Lands and Wildlife. Title to the beds and shores of all rivers, streams, water- courses, lakes and other bodies of water is declared to be vested in the Crown in right of Alberta and under the administration of the Minister of Forestry, Lands and Wildlife (Public Lands Act, RSA 1980, P-30) unless the title specifies otherwise.
Rangeland	Land on which the (climax or natural potential) plant community is dominated by grasses, grass-like plants, forbs or shrubs suitable for grazing or browsing and present in sufficient quantity to justify grazing or browsing use.
	Land on which the native vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs or shrubs suitable for grazing or browsing use. This includes lands revegetated naturally or artificially to provide a forage cover that is managed like native vegetation. Rangelands include natural grasslands, savannahs, shrublands, most deserts, tundra, alpine, communities, coastal marshes

	and wet meadows (A Glossary of Terms Used in Range Management, Society for Range Management, 1974).
Recreation	Extensive Recreation: The recreational use of trails, natural lakes, rivers, streams and generally undeveloped or minimally developed areas. The term includes such activities as off-highway vehicle use, random camping, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding and cross-country skiing. Intensive Recreation: High-density recreational use such as developed staging areas and camp and picnic grounds, and other sites or areas requiring continuous recreational management and services to maintain recreational opportunities.
Referral Systems	The Alberta government has established formal mechanisms for the internal review of land-use applications originating from within itself and the private sector. Government management agencies concerned or affected by the provisions of an application participate in its review. Each management agency subsequent to the review files its recommendation for the approval or rejection of the application. These positions are co-ordinated by a lead agency (i.e., "one window" approach) which, in turn, provides the proponent with a comprehensive decision.
Regional Resource Management Committee (RRMC)	A group of regional directors representing each of the involved divisions of Alberta Forestry, Lands and Wildlife and other agency representatives on an occasional and "as needed" basis. The RRMC reviews planning documents and has the primary responsibility for the implementation stage of the planning process.
Reserve Block	Area of timber exempted from harvest. The coniferous reserve block is usually harvested after the initial cut area has been reforested with coniferous regeneration to a height of 1.8 m (6 ft.) to 2.4 m (8 ft.). It is expected that coniferous regeneration will reach a height of 2.0 m (7 ft.) within 20 years.
Residential Subdivisions	All activities and infrastructure associated with permanent housing subdivisions for residents.
Resource	Any part of the natural environment which society perceives as having value.
Resource Integration Committee (RIC)	An approvals body responsible for supervising and monitoring the integrated resource planning program.
Resource Management Area	A geographical unit which has a common resource management intent (e.g., wildlife habitat protection, multiple use, extensive and intensive recreation).
Resource Management Guidelines	Measures which prescribe or define: a) conditions, requirements or standards which may be imposed upon those activities which have a direct or indirect effect on resources or resource uses; b) information collection activities and responsibilities;

	c) decision-making activities and responsibilities; and d) procedures for making decisions about activities.
Resource Management Implication	A statement in an integrated resource plan that attempts to outline: a) benefits to accrue to the public as a result of the policy decisions made through the plan's resource management objectives, guidelines and zoning; b) resource management costs incurred (generally in qualitative terms) to implement the proposed resource management actions; and c) potential trade-offs between mutually exclusive resource uses.
Resource Management Objective	A frame of reference that provides a degree of measure in reaching designated goals. Specifically, resource management objectives: a) document desired conditions that spell out ends rather than means; b) are cast as infinitives rather than in the imperative mood or future tense; c) are presented in a general to specific fashion which demonstrates continuity in detail; and d) are quantifiable and can be achieved with existing technology or knowledge.
Restricted	Any activity which will not be permitted until stricter than normal conditions are defined through an integrated decision-making process such as integrated resource planning and referrals.
Route	Usually a mapped but unsigned primitive travel way for motorized or non-motorized use which has a low standard of maintenance. Summer routes may not have an evident tread.
Salvage Cutting	A cutting to remove dead, downed and injured trees before the timber becomes unmerchantable.
Sanitation Cutting	A cutting made to remove dead, diseased, infested, damaged or susceptible trees to reduce or prevent the spread of insects or pathogens.
Secondary Range	An area which is unused or lightly used by livestock under minimal management and will ordinarily not be fully used until the primary range has been overused (Wildland Planning Glossary, USDA, Forest Service, 1976).
Staging Area	A site developed to provide access to trails.
Step-Out Well	A proposed well that, in the judgment of the Mineral Resources Division, Alberta Department of Energy (based on geophysical, geological or engineering technical data), has a reasonable chance of penetrating the same hydrocarbon-bearing structure discovered by a well drilled prior to July 1977 (Mineral Resources Division, Alberta Energy).
Surface Disturbance	Because historical resources generally exist on the surface or are shallowly buried in the upper components of the soil horizon, surface disturbance can include any mechanical activity that affects the distribution of near-surface or buried sediments. In the case of open prairie, even extensive vehicular activity over the surface is considered

	disturbance. In the case of forested conditions, any activity that displaces soil horizons immediately below forest litter or deeper is considered surface disturbance. In the case of a significant known historical resource containing stratified or layered occupations, compaction of sediments as a result of heavy vehicular activity is considered disturbance (Archaeological Survey of Alberta).
Sustained Yield	The yield that a forest can produce continuously at a given intensity of management without impairment of the productivity of the land. Sustained yield timber management therefore implies continuous production of timber so planned that at the earliest practical time there is a balance between timber growth and cutting (Wildland Planning Glossary, USDA, Forest Service, 1976).
Timber Quota	Coniferous Timber Quota: A percentage of the volume of the annual allowable cut, as it relates to coniferous timber, that a quota holder may harvest. Deciduous Timber Quota: The volume or area of deciduous timber that a quota holder may harvest. (Forests Act, RSA 1980, c. F-16).
Trail	A signed, mapped travel way for motorized or non-motorized use that has an evident tread (in summer) and is developed and maintained to a prescribed standard.
Tourism	The action and activities of people taking trips to places outside their home communities for any purpose except daily commuting to and from work.
Tourism Attractions	A physical feature of interest or significance which can either be natural or man-made. There may or may not be facilities constructed in conjunction with it to increase the enjoyment of visitors. The attraction can be of international, national, provincial, regional or local significance, depending upon the degree of market appeal.
Tourism Facility	A man-made development whose purpose is to offer or enhance a particular service or recreational activity to the tourist.
Water Quality	Quantity of solid and dissolving material carried out by a stream (Resource Conservation Glossary, Soil Conservation Society of America, 1976).
White Area	The White Area is the region of the province settled initially and includes nearly 40 per cent of the total area of Alberta. Available public lands in this region, suitable for settlement and agriculture and not required for conservation, watershed, forestry, recreational uses or wildlife habitat, for example, may be applied for pursuant to the Public Lands Act (RSA 1980, P-30).
Wildland Recreation	In relative terms, extensive recreation occurring on lands that are on the less used and less altered side of a continuum from totally developed to completely untouched lands. The term is not exact in that the land may be under a low level of management for several land uses and is therefore not truly wild.

Wildlife Depredation	Use of lands and/or land products by wildlife for their survival which is determined by human land occupants to be in direct competition with a proposed or existing use. Examples include wildlife use of agricultural crops, hay stacks and domestic livestock ranges.
Wildlife Management Unit	An area of Alberta designated in the Wildlife Act (RSA, 1980) for the purpose of administration.

REFERENCES

Alberta. Department of Lands and Forests. 1971 (rev.). Alberta's Forests. Edmonton.

_____. Energy and Natural Resources. 1976. A Coal Development Policy for Alberta. Edmonton.

_____. 1977. Timber Harvest Cutblock Design Manual. ENR Report No. 43. Edmonton.

_____. 1981. Internal Referrals Systems of Alberta Energy and Natural Resources: Report on the Task Force. Dept./10. Edmonton.

_____. 1982. Fish and Wildlife Policy for Alberta. Edmonton.

_____. 1984. A Policy for Resource Management of the Eastern Slopes Revised 1984. ENR Number T/38. Edmonton.

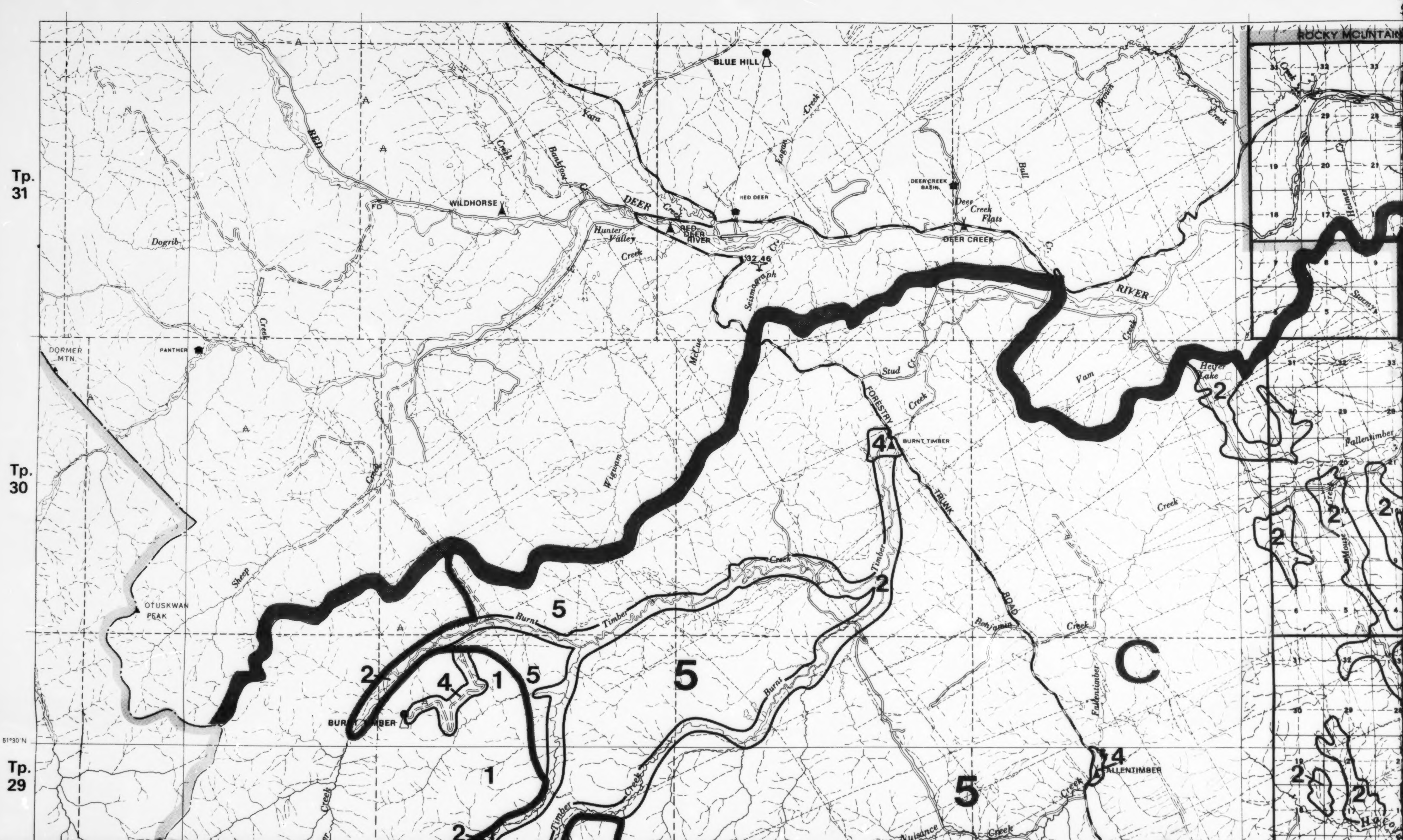
_____. 1984. Status of the Fish and Wildlife Resource in Alberta. ENR No. 1/87. Edmonton.

_____. 1986. Forest Landscape Management Guidelines for Alberta. Timber Management Publication No. T/125. Edmonton.

Society for Range Management. 1974. A Glossary of Terms Used in Range Management. Denver.

Soil Conservation Society of America. 1976. Resource Conservation Glossary, 3rd Edition. Iowa.

USDA, Forest Service. 1976. Wildland Planning Glossary. Berkeley.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Tp. 30
Tp. 29
51°30'N
ROCKY MOUNTAIN
BLUE HILL
RED
DEER
RIVER
Yara
Creek
Bankfoot C.
Logan
Creek
Brown
Creek
Bull
Creek
WILDHORSE
FD
DEER CREEK BASIN
RED DEER
Deer Creek Flats
DEER CREEK
RED DEER RIVER
Hunter Valley
Creek
Dogrib
132 46
Seismograph Cr.
Heiner
Stoney
Creek
DORMER MTN.
PANTHER
Sheep
Creek
McCue
Wigwam
Stud Cr.
Creek
FORESTRY
TRUNK
ROAD
BURNT TIMBER
Van
Creek
Heyer Lake
Fallentimber
Mount
Creek
OTUSKWAN PEAK
Burnt
Timber
Creek
Benjamin
Creek
Burnt
Timber
Creek
BURNT TIMBER
Fallentimber
FALLENTIMBER
Nuisance
Creek
Creek
C
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31
32
33
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21
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17
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6
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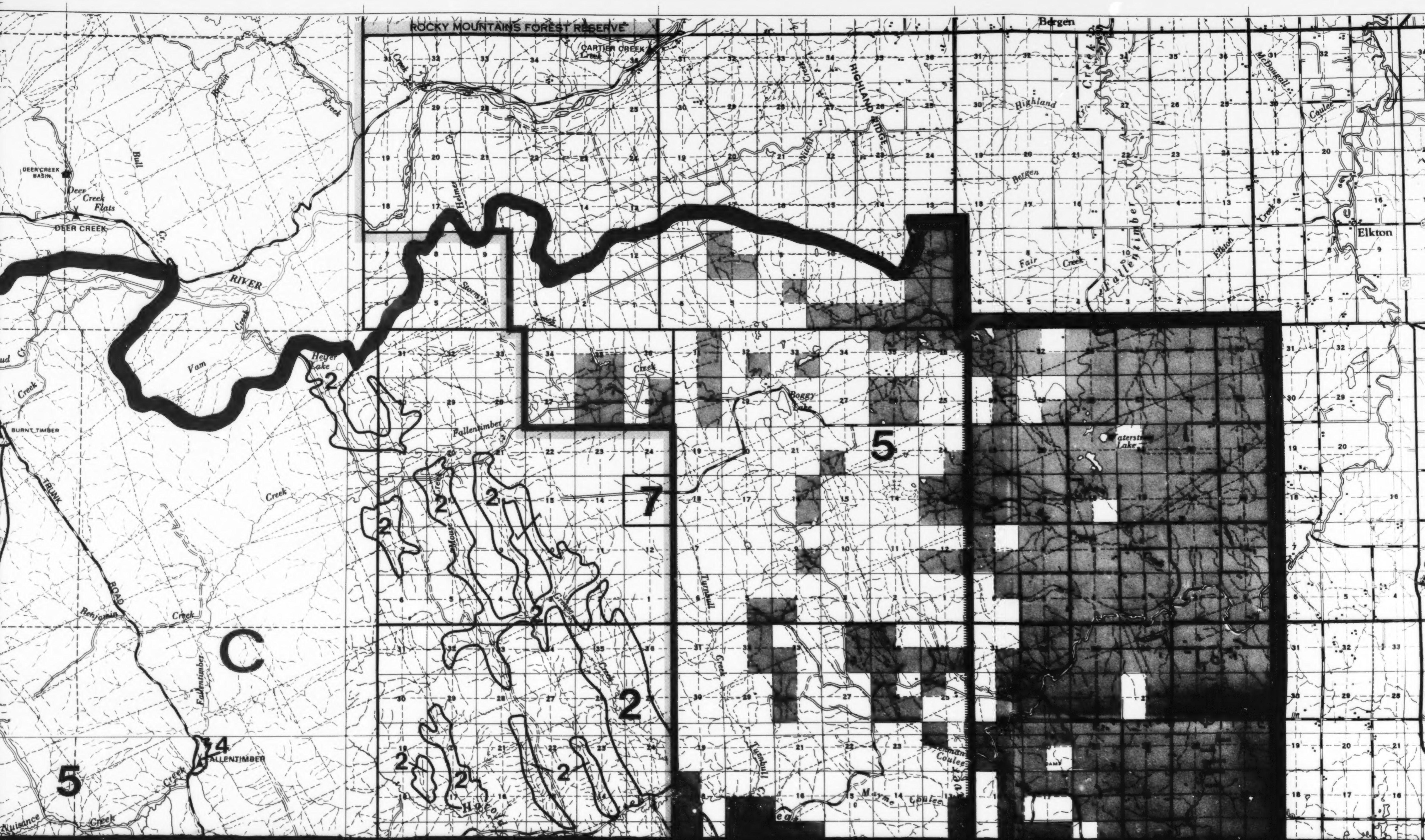
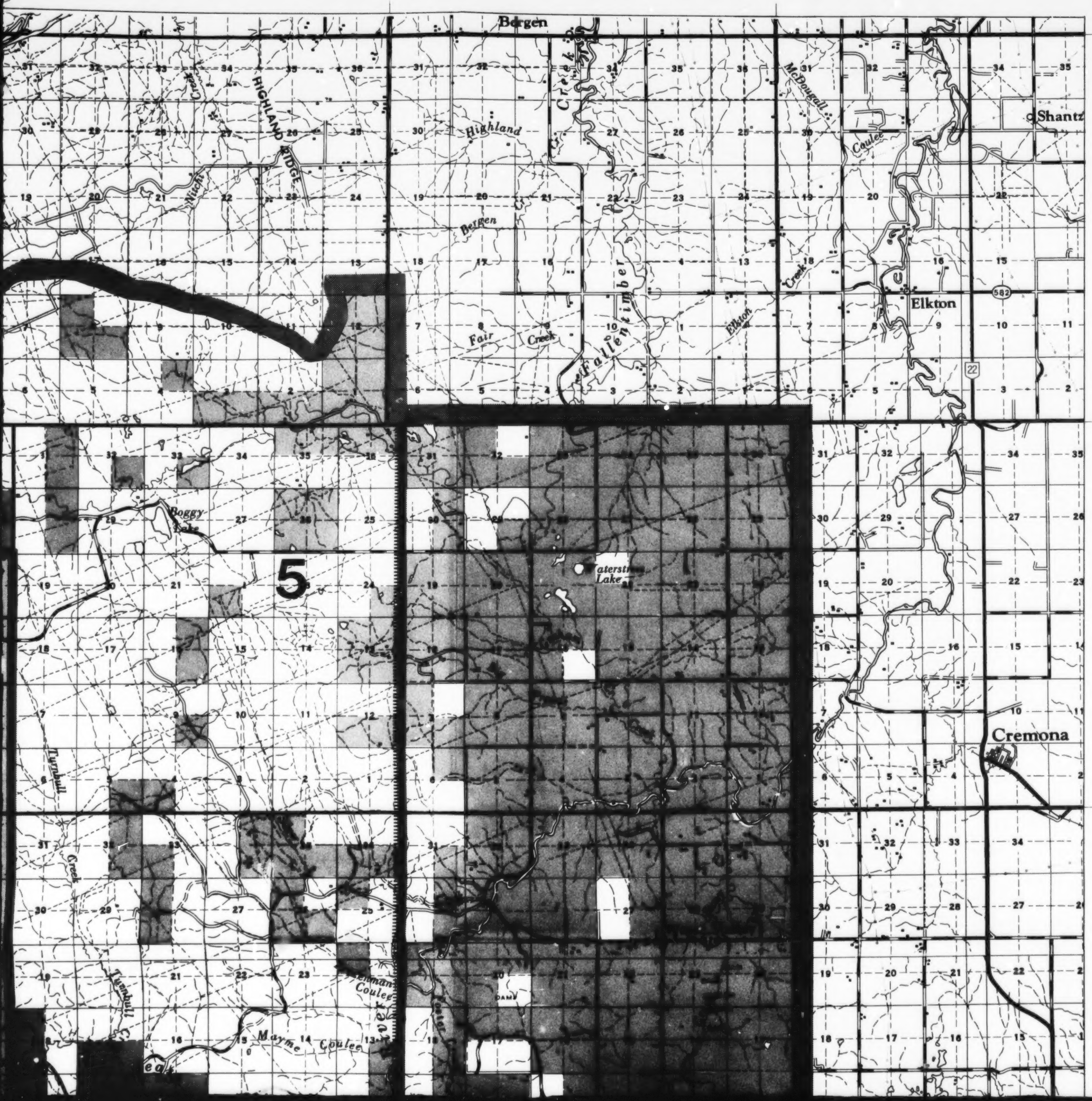
4


ROCKY MOUNTAINS FOREST RESERVE
CARTIER CREEK
Bergen
HIGHLAND RIDGE
Highland
McDougall Coulee
DEER CREEK BASIN
Deer Creek Flats
DEER CREEK
Bull
Brown Creek
RIVER
Helmer Cr.
Stormy Creek
Fair Creek
Fallentimber
Elkton
22
Vam Creek
Heyer Lake
Boggy Lake
Waterston Lake
BURNT TIMBER
TRUNK ROAD
Benjamin Creek
Fallentimber
C
4
FALLENTIMBER
5
Nuisance Creek
Turnbull Creek
Mayme Coulee
DAM
2
2
2
2
2
2
2
2
5
7


Bergen
Highland Ridge
Highland
Bergen
McDougall Coulee
Shantz
Elkton
582
22
Fair Creek
Fallentimber Creek
Elkton Creek
Nicht Creek
Boggy Lake
5
Waterstone Lake
Turnbull
Cremona
Coulee
Mayme Coulee
Creek
Turnbull Creek
DAMS

GHOST RIVER
INTEGRATED RESOURCE PLAN

BASE MAP LEGEND

HARD SURFACE all weather - primary
- secondary

LOOSE or STABILIZED SURFACE
all weather - primary
- secondary
- tertiary

LOOSE SURFACE dry weather

TRUCK TRAIL

SEISMIC LINE or TRAIL

RAILWAY

TRANSMISSION LINE

PIPE LINE

GAS PLANT / COMPRESSOR STN.

CANAL (ditch)

FOREST HEADQUARTERS/RANGER STATION/CABIN

RECREATION AREA, developed/undeveloped

LOOKOUT, primary/secondary/crawl tower or point

FLOATPLANE LANDING

AIRSTRIP LENGTH and ELEVATION (amsl) in hundreds of feet 35 17
- regular maintenance
- occasional maintenance

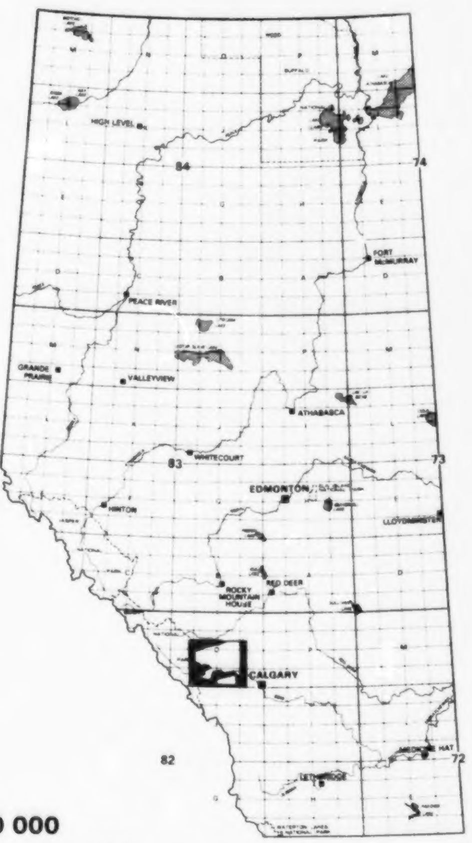
HELIPORT/HELIPAD

LOCAL NAME ( )
not recognized by the Geographical Names Board.

MINE (gravel pit)

FORD

PROVINCIAL LOCATION KEY MAP


HIGH LEVEL
84
74
FORT McMURRAY
PEACE RIVER
GRANDE PRAIRIE
VALLEYVIEW
ATHABASCA
83
WHITECOURT
EDMONTON
73
HINTON
LLOYDMINSTER
RED DEER
ROCKY MOUNTAIN HOUSE
CALGARY
82
LETHBRIDGE
72

SCALE 1:100 000

UNIVERSAL TRANSVERSE MERCATOR PROJECTION

Kilometres 2 1 0 2 4 6 8 10 Kilometres

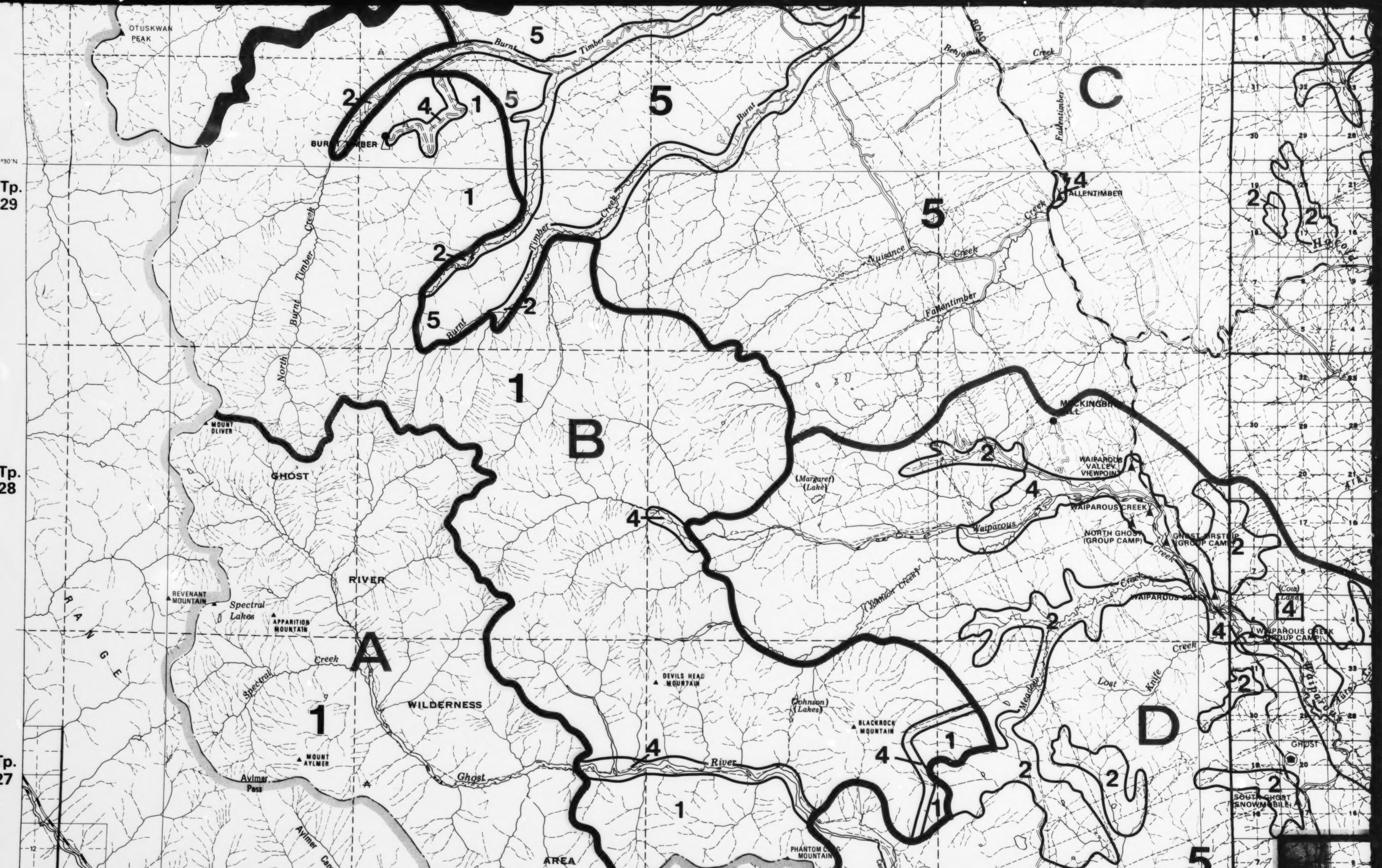
Miles 1 0 1 2 3 4 5 6 Miles

WEST OF THE FIFTH MERIDIAN

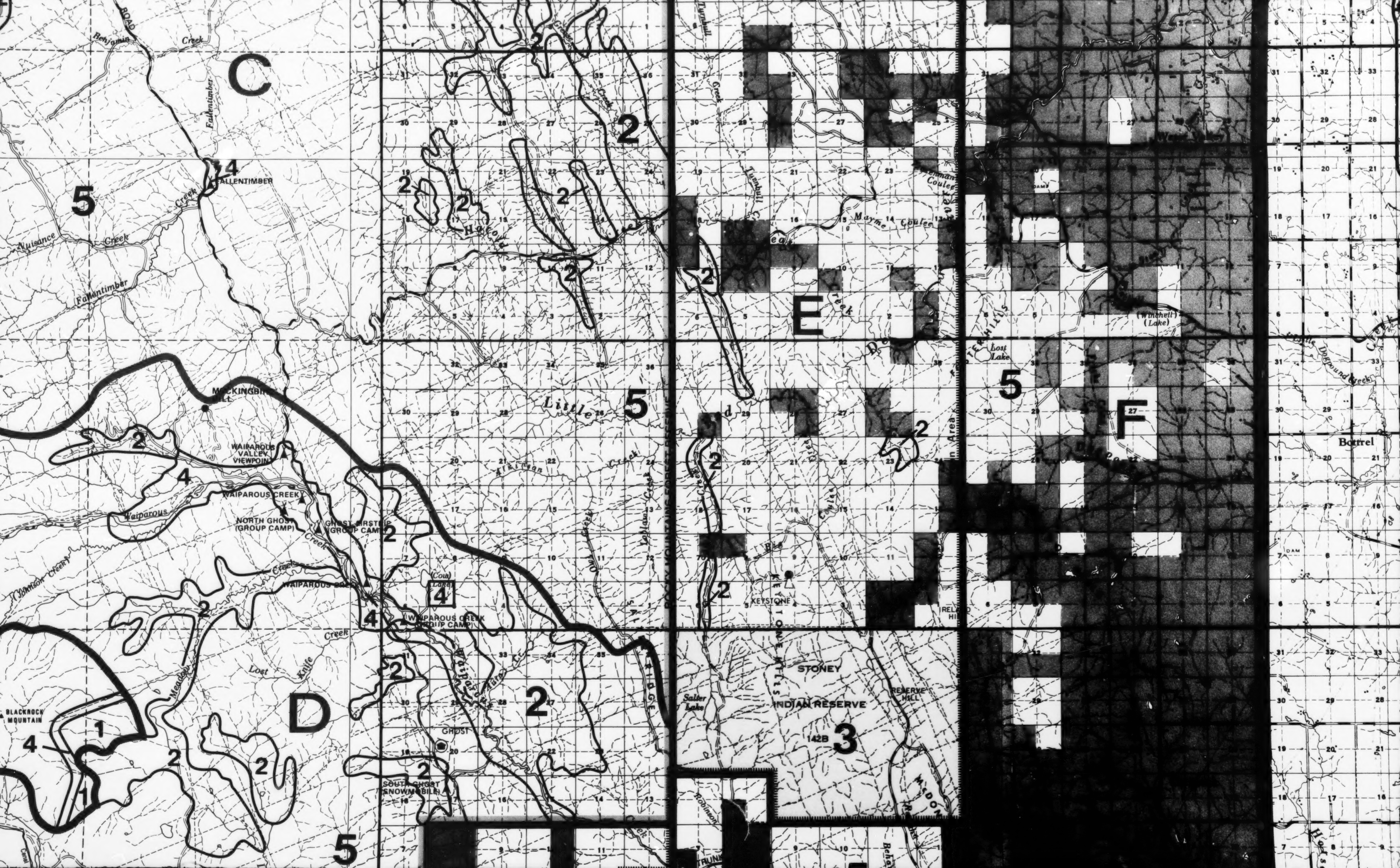
JANUARY
1989

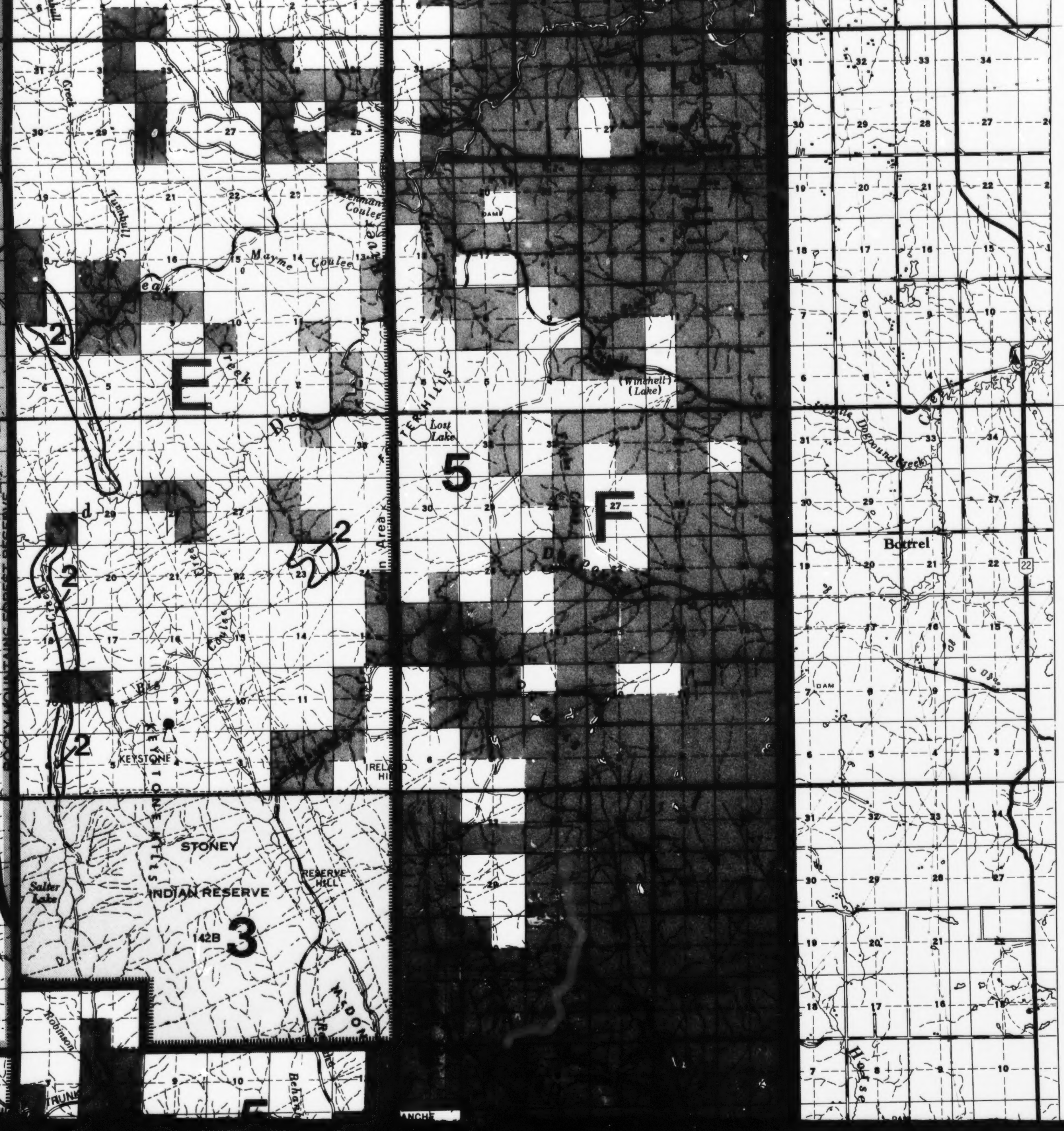
Alberta
FORESTRY, LANDS AND WILDLIFE
Land Information Services Division

■ Planning Area Boundary



OTUSKWAN PEAK
BURNT TIMBER
Burnt Timber Creek
North Burnt Timber Creek
Benjamin Creek
ROAD
Fallentimber
FALLENTIMBER
Nuisance Creek
Fallentimber Creek
Tp. 29
Tp. 28
Tp. 27
MOUNT OLIVER
GHOST
RIVER
WILDERNESS
AREA
RANGE
REVENANT MOUNTAIN
Spectral Lakes
APPARITION MOUNTAIN
Spectral Creek
MOUNT AYLMER
Aylmer Pass
Aylmer
Ghost River
DEVILS HEAD MOUNTAIN
(Margaret) (Lake)
(Johnson) (Lakes)
Johnson Creek
BLACKROCK MOUNTAIN
PHANTOM CRAG MOUNTAIN
MOCKINGBIRD HILL
WAIPAROUS VALLEY VIEWPOINT
WAIPAROUS CREEK
Waiparous Creek
NORTH GHOST (GROUP CAMP)
GHOST AIRSTRIP (GROUP CAMP)
WAIPAROUS CREEK (GROUP CAMP)
(Cow) (Lake)
Meadow
Lost Knife Creek
GHOST
SOUTH GHOST (SNOWMOBILE)
A
B
C
D
1
2
4
5


C
D
E
F
1
2
3
4
5
Benjamin Creek
Fallentimber
FALLENTIMBER
Nuisance Creek
Fallentimber Creek
Harold
Turnbull Creek
Mayme Coulee
Freeman Coulee
(Winchell) (Lake)
Lost Lake
Little Red
MOCKINGBIRD HILL
WAIPAROUS VALLEY VIEWPOINT
WAIPAROUS CREEK
NORTH GHOST (GROUP CAMP)
GHOST FIRST (GROUP CAMP)
Waiparous Creek
Johnson Creek
WAIPAROUS CREEK (GROUP CAMP)
(Cow) Lake
Lost Knife Creek
Meadow
BLACKROCK MOUNTAIN
GHOST
SOUTH GHOST (SNOWMOBILE)
KEYSTONE
IRELAND HILL
STONEY INDIAN RESERVE 142B
RESERVE HILL
Salter Lake
Robinson
Bottrel
Dogpound Creek
DAM


E
F
5
3
2
2
2
2
2
Turnbull
Coulee
Mayme Coulee
Creek
Lost Lake
(Winchell Lake)
DAM
Dogpound Creek
Bottrel
22
KEYSTONE
KEYSTONE HILLS
RELEAD HILL
STONEY
INDIAN RESERVE
RESERVE HILL
142B
Salter Lake
Robinson
TRUNK
DAM
Horse

JANUARY
1989

Alberta
FORESTRY, LANDS AND WILDLIFE
Land Information Services Division

▬ Planning Area Boundary

┅ Proposed Green Area Boundary

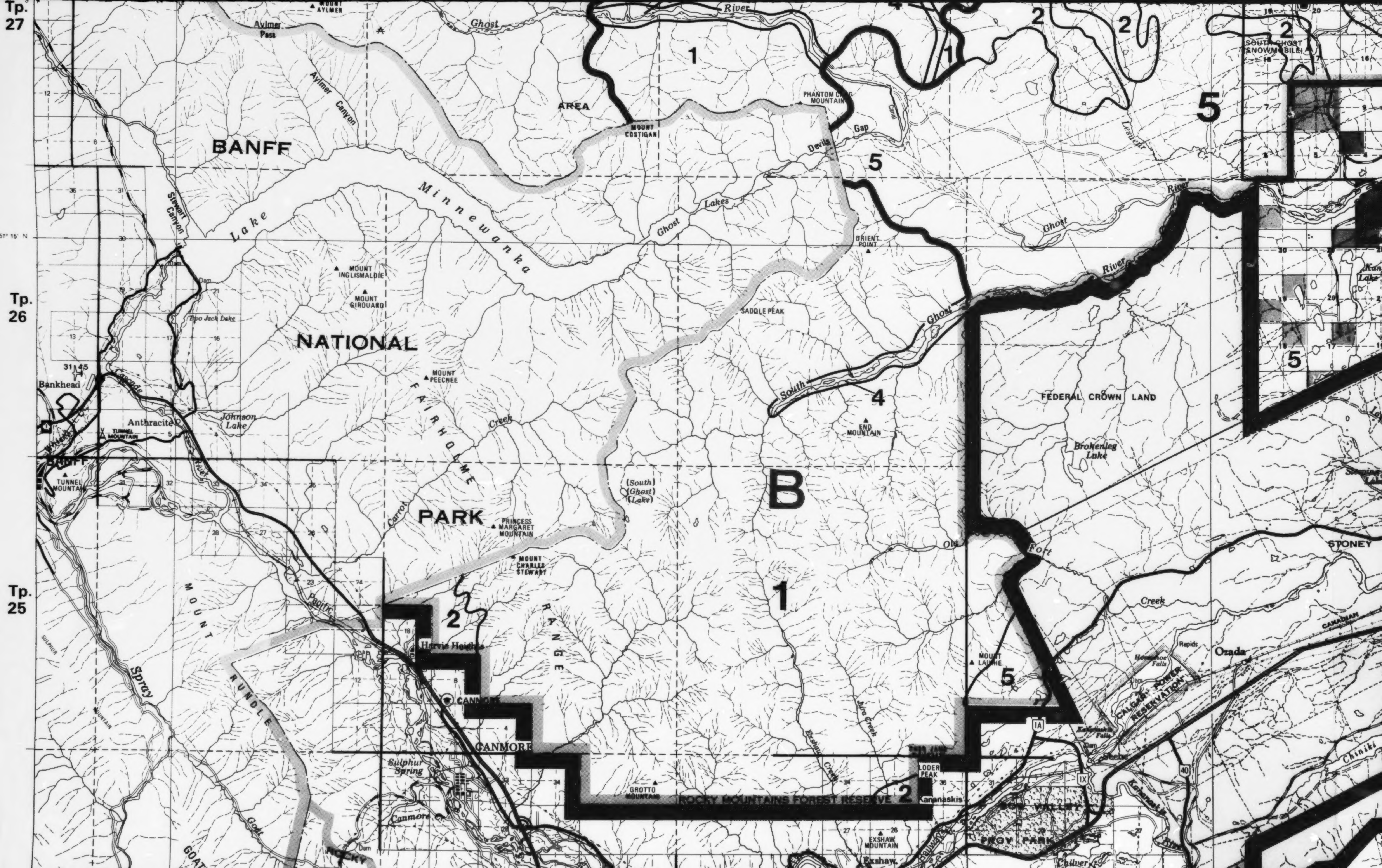
▭ Forest Reserve Boundary

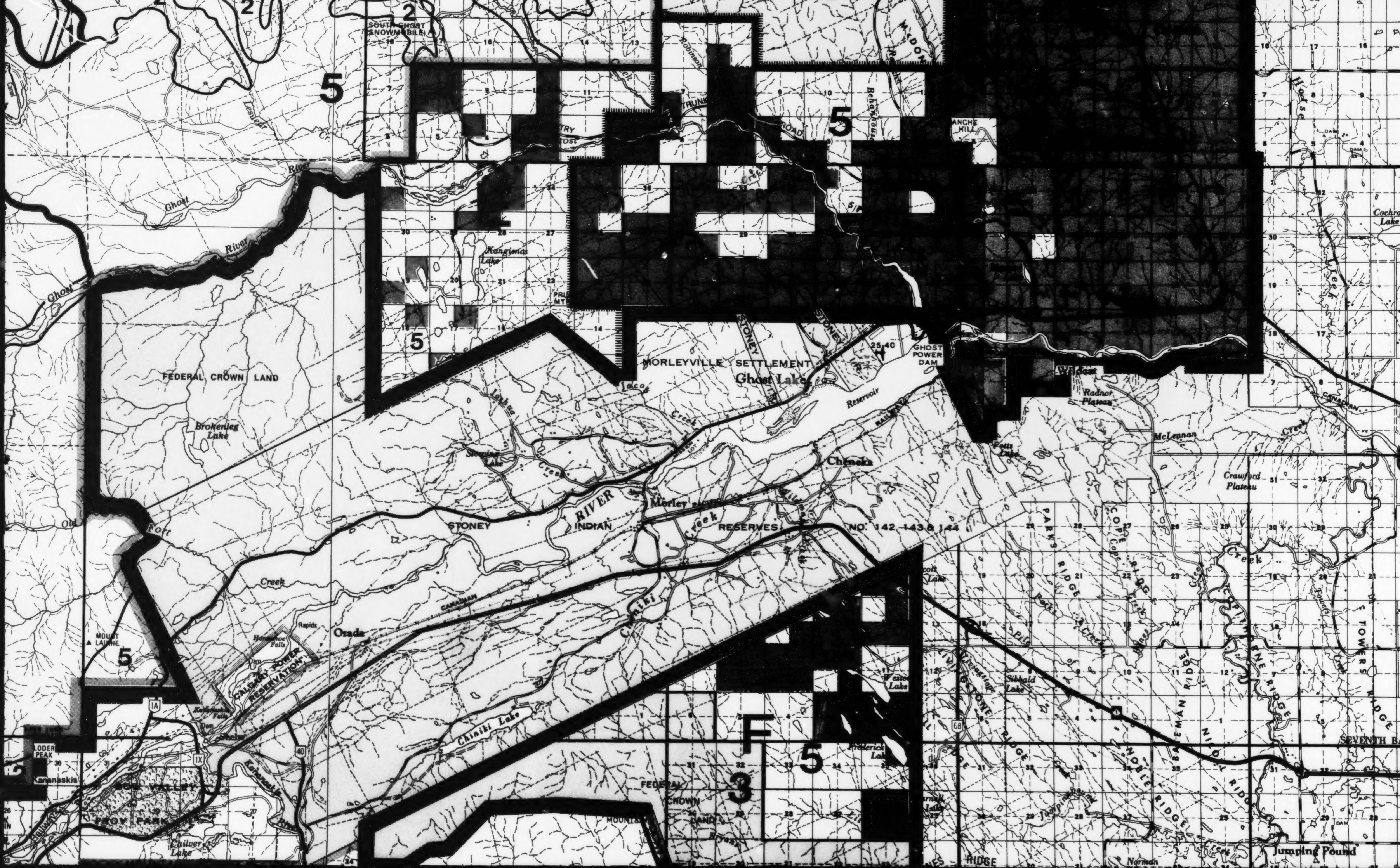
▨ Patent Land

RESOURCE MANAGEMENT AREAS

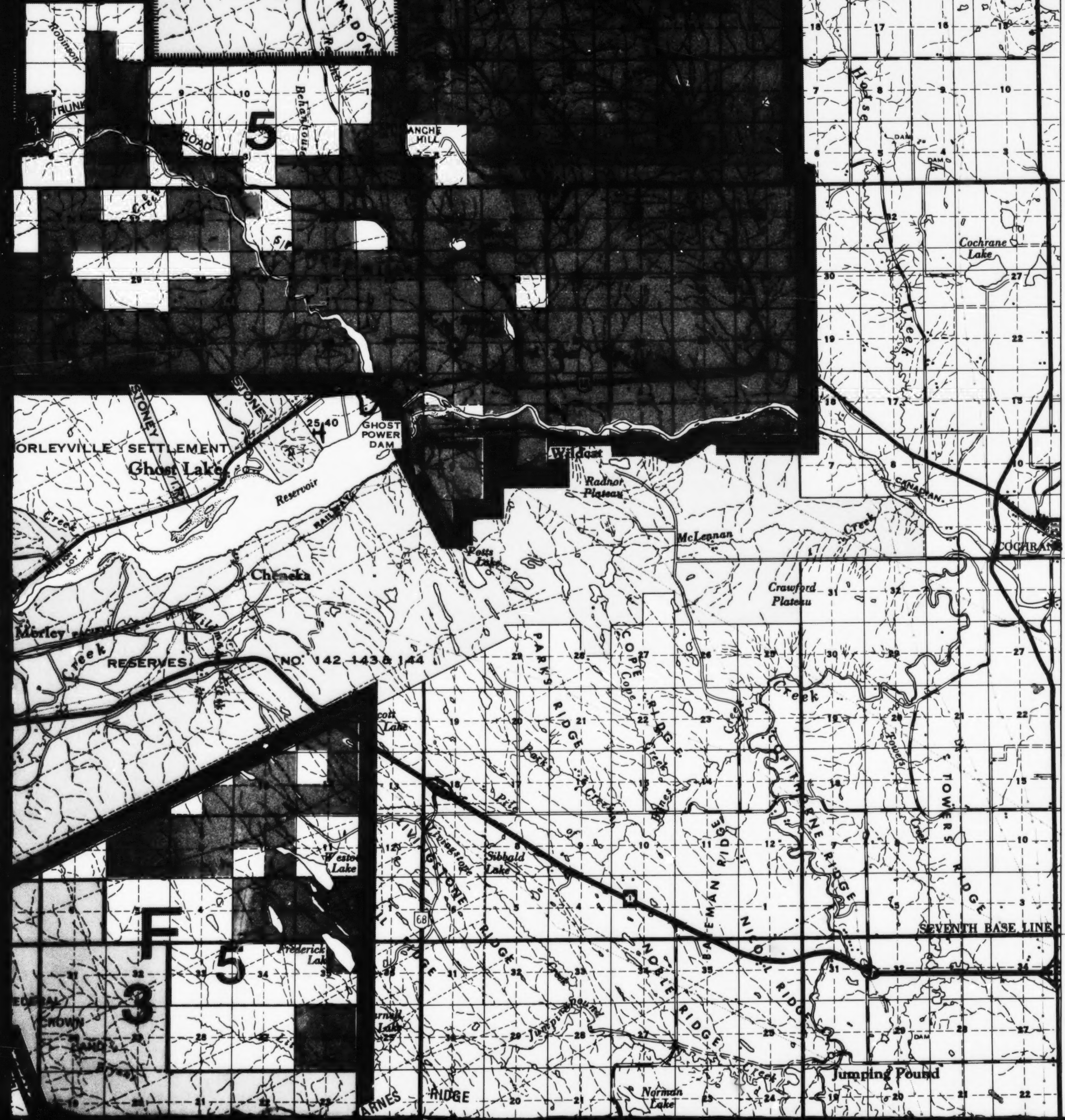
- **A Ghost Wilderness**
- **B Upper Ghost**
- **C Fallentimber**
- **D Waiparous**
- **E Little Red Deer**
- **F Water Valley**

▬ **Resource Management Area Boundary**


Tp. 27
Tp. 26
Tp. 25
BANFF
NATIONAL
PARK
AREA
B
1
1
1
2
2
2
2
4
4
5
5
5
5
5
MOUNT AYLMER
Aylmer Pass
Aylmer Canyon
Ghost
River
Stewart Canyon
Lake Minnewanka
Ghost Lakes
MOUNT COSTIGAN
PHANTOM CRAG MOUNTAIN
Devils Gap
Canal
Lesueur Cr.
SOUTH GHOST SNOWMOBILE
ORIENT POINT
Ghost River
Ghost
SADDLE PEAK
South Ghost
END MOUNTAIN
MOUNT INGLISMALDIE
MOUNT GIROUARD
Two Jack Lake
Dam
MOUNT PEECHEE
FAIRHOLME
Creek
Carrot
Bankhead
Cascade
Anthracite
Johnson Lake
TUNNEL MOUNTAIN
BANFF
(South) (Ghost) (Lake)
PRINCESS MARGARET MOUNTAIN
MOUNT CHARLES STEWART
FEDERAL CROWN LAND
Brokenleg Lake
Old Fort Creek
STONEY
Creek
CANADIAN
MOUNT
RANGE
Pacific
Harvie Heights
CANMORE
CANMORE
Sulphur Spring
Canmore
SULPHUR MOUNTAIN
Spray
RUNDLE
Goat
GOAT
ROCKY
Dam
MOUNT LAURIE
1A
Horseshoe Falls
Kananaskis Falls
Seebe
Dam
Rapids
Ozada
CALGARY POWER RESERVATION
40
1X
Kananaskis River
Chiniki
Jura Creek
Exshaw Creek
LODER PEAK
GROTTO MOUNTAIN
ROCKY MOUNTAINS FOREST RESERVE
Kananaskis
EXSHAW MOUNTAIN
Exshaw
BOW VALLEY PROV PARK
Chilver
51° 15' N



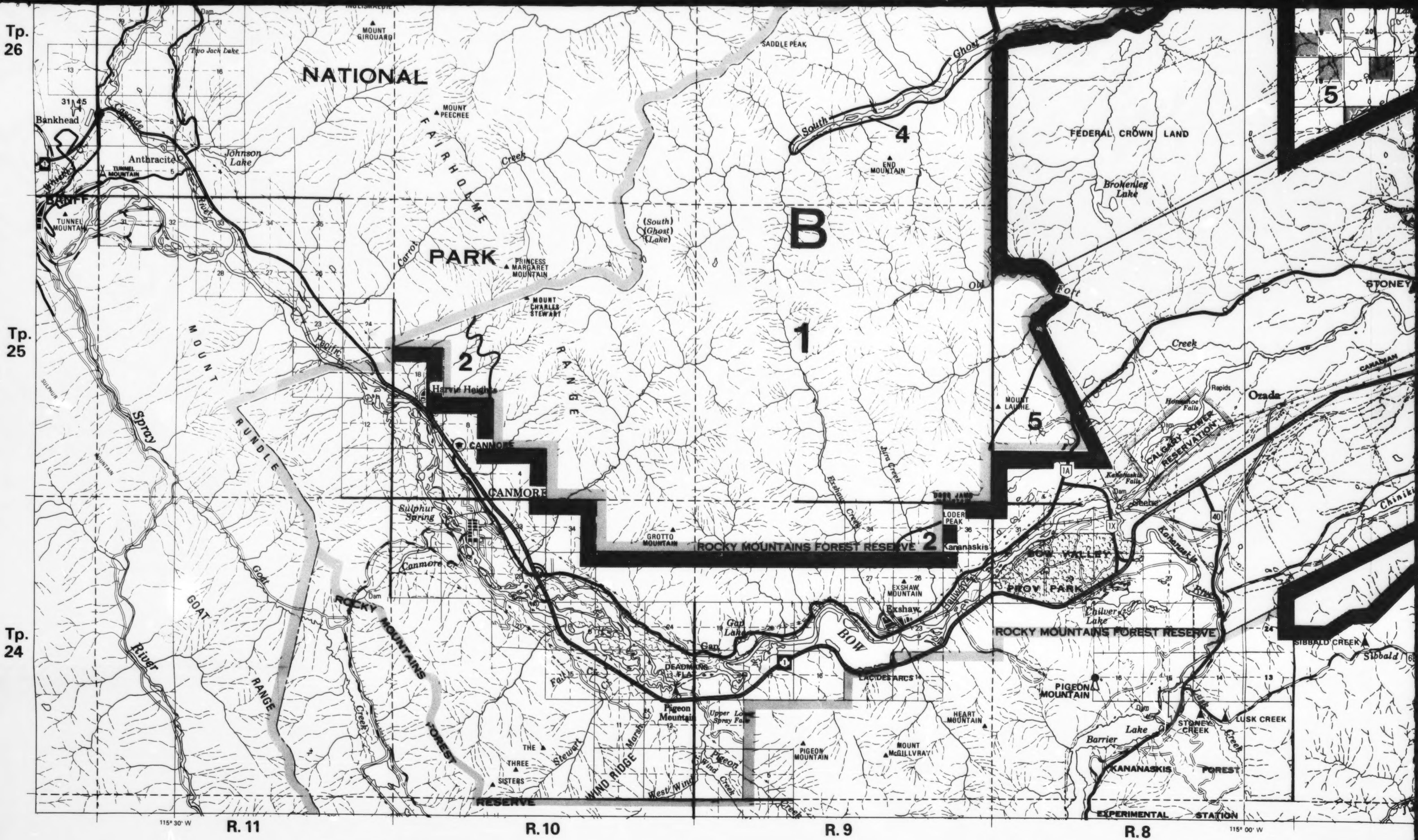
SOUTH GHOST (SNOWMOBILE)
2
5
Ghost River
FEDERAL CROWN LAND
Brokenleg Lake
Kangienos Lake
MORLEYVILLE SETTLEMENT
Ghost Lake
Reservoir
GHOST POWER DAM
Wildcat
Radnor Plateau
McLennan
Crawford Plateau
Chiniki Lake
STONEY INDIAN RESERVES NO. 142 143 & 144
RIVER
Morley
Chiniki Creek
Jacob Creek
Ozada
Rapids
Horseshoe Falls
CALGARY POWER RESERVATION
MOUNT LAURIE
Kananaskis Falls
Seebe
LODER PEAK
Kananaskis
BOW VALLEY PROV PARK
Chilver Lake
CANADIAN
Old Fort Creek
Creek
1A
1X
40
68
PARKS RIDGE
COPE RIDGE
LIVINGSTONE RIDGE
NOBLE RIDGE
BATEMAN RIDGE
NICOL RIDGE
COPITHORNE RIDGE
TOWERS RIDGE
Sibbald Lake
Weston Lake
Fredericks Lake
Pile Creek
Jumping Pound
Jumpingpound
FEDERAL CROWN LAND
F
3
SEVENTH BASE
Horse Creek
Cochrane Lake
Robinson
McDONALD
TRUNK ROAD
Chiniki
Chiniki Lake
Bow
25,40

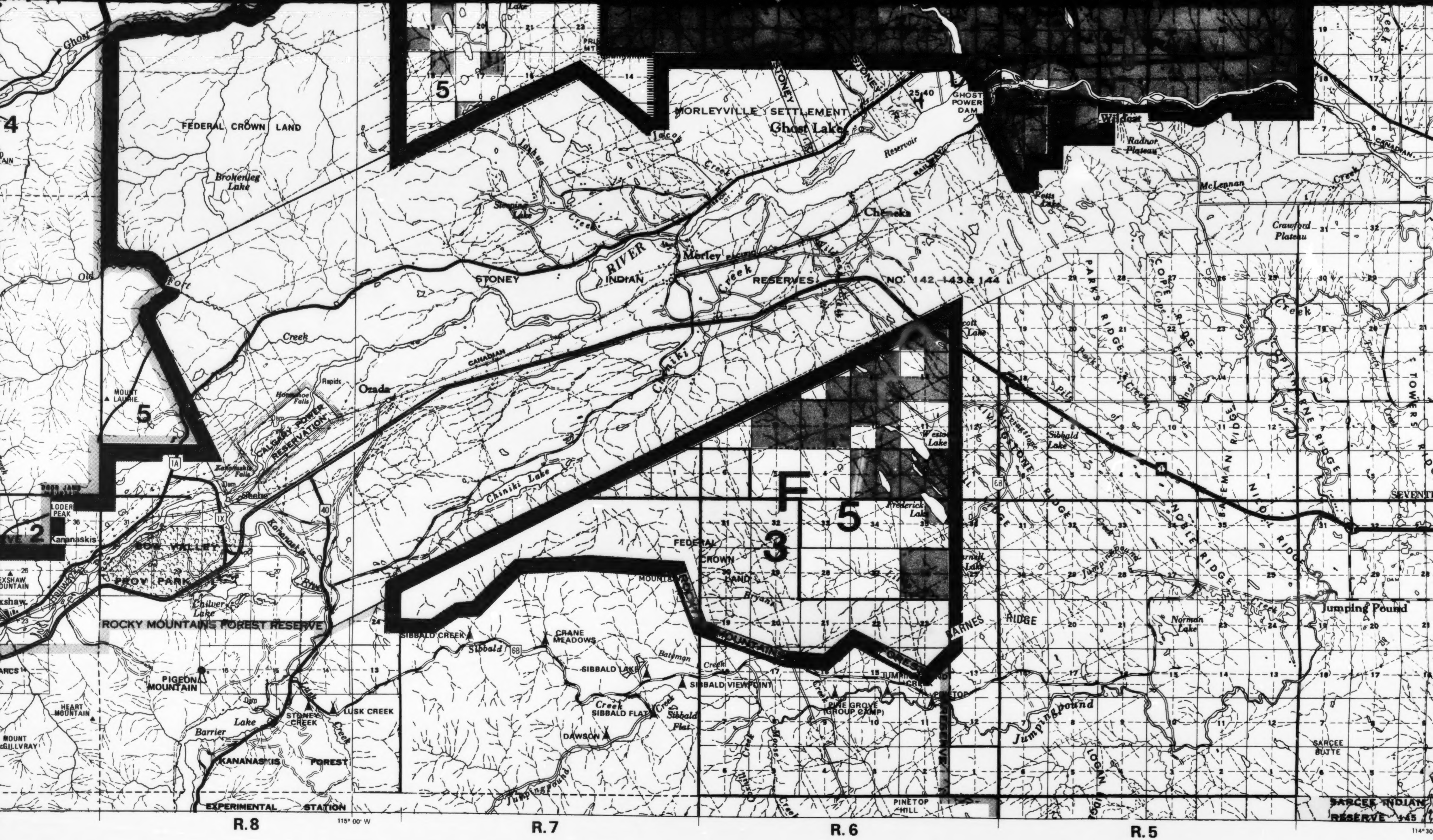

5
Robinson
TRUNK ROAD
Beharrouse
MCDONALD
Horse Creek
Cochrane Lake
BLANCHE HILL
STONEY
MORLEYVILLE SETTLEMENT
GHOST POWER DAM
Ghost Lake
Reservoir
Wildcat
Radnor Plateau
McLennan
Potts Lake
Crawford Plateau
CANADIAN PACIFIC
COCHRANE
Chiniki
Morley
RESERVES
NO. 142 143 & 144
PARKS RIDGE
COPE RIDGE
Coyote Creek
Towers Ridge
Scott Lake
Pile Creek
Sibbald Lake
Weston Lake
Frederick Lake
LIVINGSTONE RIDGE
BATEMAN RIDGE
NICOLL RIDGE
NOBLE RIDGE
SEVENTH BASE LINE
Jumping Pound
Jumpingpound Creek
Norman Lake
Barnes Lake
F
5
3
FEDERAL CROWN LAND
68
1

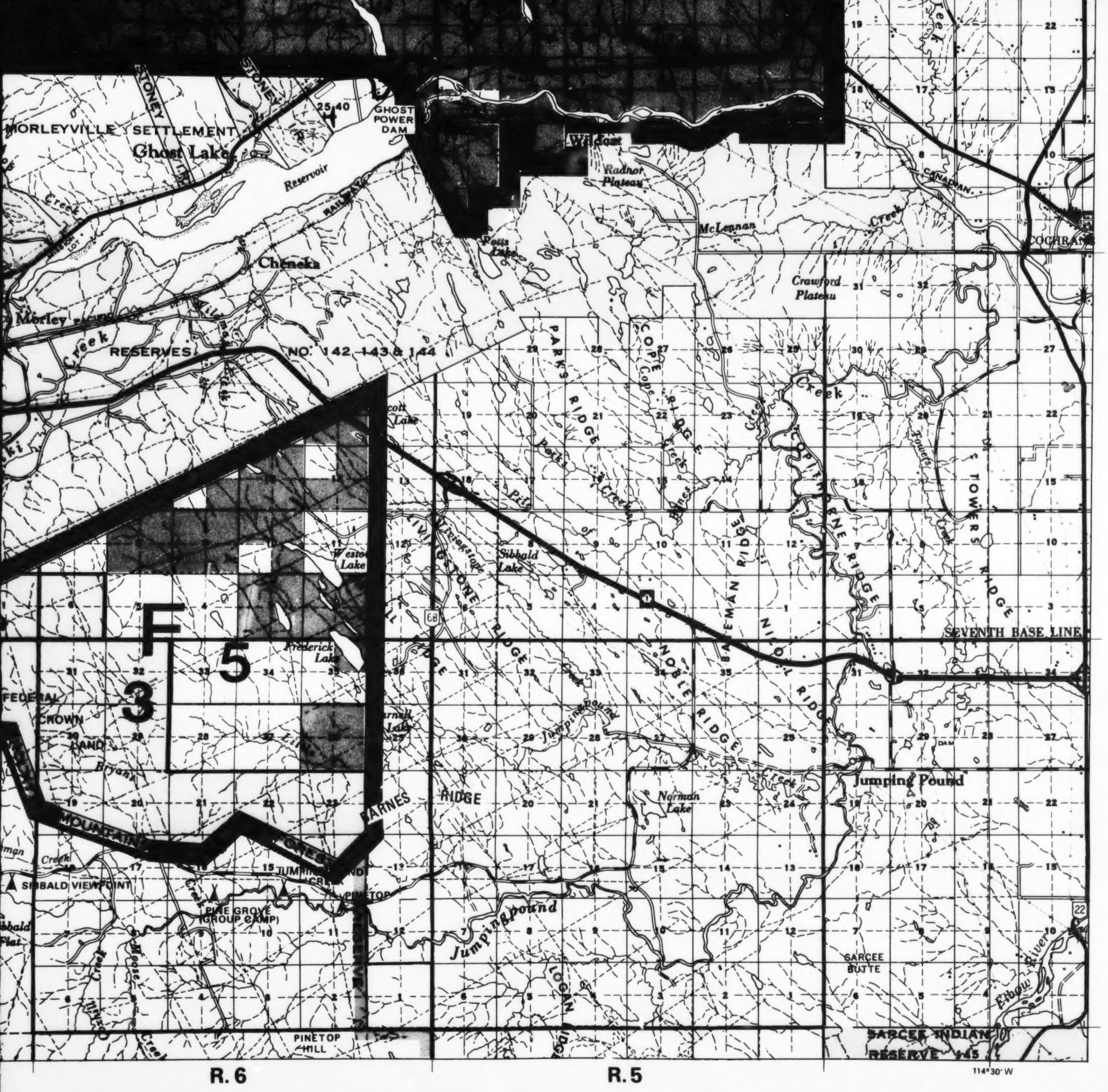
▬ **Resource Management Area Boundary**

REVISED EASTERN SLOPES ZONING

1 **Prime Protection**
2 **Critical Wildlife**
3 **Special Use**
4 **General Recreation**
5 **Multiple Use**
6 **Agriculture** (not applied)
7 **Industrial**
8 **Facility** (not applied)


Tp. 26
Tp. 25
Tp. 24
R. 11
R.10
R.9
R.8
115° 30' W
115° 00' W
NATIONAL
PARK
FAIRHOLME
RANGE
MOUNT GIROUARD
Two Jack Lake
MOUNT PEECHEE
Bankhead
Anthracite
Johnson Lake
TUNNEL MOUNTAIN
BANFF
Cascade
Carrot
Creek
PRINCESS MARGARET MOUNTAIN
MOUNT CHARLES STEWART
SADDLE PEAK
South
Ghost
4
END MOUNTAIN
(South) (Ghost) (Lake)
B
1
2
5
FEDERAL CROWN LAND
Brokenleg Lake
Old
Fort
Creek
STONEY
MOUNT LAURIE
Harvie Heights
CANMORE
Sulphur Spring
Canmore
MOUNT
RUNDLE
Spray
River
GOAT
RANGE
Goat
Creek
Pacific
GROTTO MOUNTAIN
ROCKY MOUNTAINS FOREST RESERVE
LODER PEAK
Kananaskis
Exshaw
EXSHAW MOUNTAIN
Jura Creek
Gap
Gap Lake
BOW
BOW VALLEY PROV PARK
Chilver Lake
CALGARY POWER RESERVATION
Horseshoe Falls
Kananaskis Falls
Seebe
Ozada
Rapids
Dam
1A
1X
40
1
CANADIAN
Chiniki
Kananaskis River
SIBBALD CREEK
Sibbald
DEADMANS FLAT
Pigeon Mountain
PIGEON MOUNTAIN
Upper Lower Spray Falls
LAC DES ARCS
HEART MOUNTAIN
MOUNT McGILLVRAY
THE THREE SISTERS
Stewart
WIND RIDGE
Marsh
West Wind
Wind Creek
Pigeon
Barrier Lake
STONEY CREEK
LUSK CREEK
KANANASKIS FOREST EXPERIMENTAL STATION
ROCKY MOUNTAINS FOREST RESERVE
RESERVE


FEDERAL CROWN LAND
MORLEYVILLE SETTLEMENT
Ghost Lake
GHOST POWER DAM
Reservoir
Wildcat
Radnor Plateau
McLennan
Crawford Plateau
Brokenleg Lake
Jacob Creek
Chiniki Lake
STONEY INDIAN RESERVES NO. 142, 143 & 144
RIVER
Morley
Chiniki Creek
Ozada
Horseshoe Falls
CALGARY POWER RESERVATION
Kananaskis Falls
Seebe
MOUNT LAURIE
LODER PEAK
Kananaskis
BOW VALLEY PROV PARK
EXSHAW MOUNTAIN
Chilver Lake
ROCKY MOUNTAINS FOREST RESERVE
PIGEON MOUNTAIN
HEART MOUNTAIN
MOUNT McGILLVRAY
Barrier Lake
STONEY CREEK
LUSK CREEK
KANANASKIS FOREST EXPERIMENTAL STATION
SIBBALD CREEK
CRANE MEADOWS
SIBBALD LAKE
SIBBALD VIEWPOINT
SIBBALD FLAT
DAWSON
Jumpingpound
PINE GROVE (GROUP CAMP)
PINETOP
PINETOP HILL
FEDERAL CROWN LAND
Weston Lake
Frederick Lake
Scott Lake
Sibbald Lake
Potts Lake
PARKS RIDGE
COPE RIDGE
BATEMAN RIDGE
NICOL RIDGE
NOBLE RIDGE
COPITHORNE RIDGE
TOWERS RIDGE
BARNES RIDGE
LOGAN RIDGE
Norman Lake
Jumping Pound
SARCEE BUTTE
SARCEE INDIAN RESERVE 145
SEVENTH
1A
1X
40
68
4
5
5
2
F
3
5
R.8
115° 00' W
R.7
R.6
R.5
114°30'


MORLEYVILLE SETTLEMENT
Ghost Lake
Reservoir
GHOST POWER DAM
STONEY
Widgeon
Radnor Plateau
RAILWAY
Chiniki
McLennan
Potts Lake
COCHRANE
CANADIAN
Crawford Plateau
Morley
RESERVES
NO. 142, 143 & 144
PARKS RIDGE
COPE RIDGE
Coxcott Lake
Creek
TOWERS RIDGE
LIVINGSTONE RIDGE
Sibbald Lake
Weston Lake
BATEMAN RIDGE
COPITHORNE RIDGE
SEVENTH BASE LINE
NICOL RIDGE
NOBLE RIDGE
F
5
3
Frederick Lake
FEDERAL CROWN LAND
Jumpingpound
Jumping Pound
Norman Lake
RIDGE
FARNES
MOUNTAIN
FOREST
SIBBALD VIEWPOINT
PINE GROVE (GROUP CAMP)
PINETOP
Sibbald Flat
LOGAN RIDGE
SARCEE BUTTE
Elbow River
PINETOP HILL
SARCEE INDIAN RESERVE 145
22
68
1
R.6
R.5
114°30' W

1 Prime Protection
2 Critical Wildlife
3 Special Use
4 General Recreation
5 Multiple Use
6 Agriculture (not applied)
7 Industrial
8 Facility (not applied)